

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

For: METHOD TO CONTROL REACTIONS
INVOLVING ISOTOPIC FUEL
WITHIN A MATERIAL USING
ORTHOGONAL ELECTRIC-FIELDS

Serial no. 09/ 748,691

Filed: 12/26/2000

This is a division of Serial no. 07/ 760,970

Filed: 09/17/1991

Group Art Unit: 3641

Examiner: Palabrica, R.J.

September 17, 2003

Office of the Clerk
Board Of Patent Appeals
c/o The Commissioner for Patents
Alexandria, VA 22313-1450

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Appellant hereby certifies that this Appeal Brief (Original and 2 copies) containing an Appendix of the Claims has been deposited with the United States Postal Service by First Class Mail, postage prepaid, in an envelope addressed to "Office of the Clerk, Board Of Patent Appeals, c/o The Commissioner for Patents, Alexandria, VA 22313-1450" on the date below.

September 17, 2003



Mitchell Swartz, *pro se*, Appellant

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Board Of Patent Appeals
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To Whom it Does Concern:

NOTICE OF COMPLIANCE BY APPELLANT

Office of the Clerk
Board Of Patent Appeals
c/o The Commissioner for Patents
Alexandria, VA 22313-1450

To Whom it Does Concern:

In response to the Office notification (attached, Exhibit "A"), attached hereto is Appellant's revised Appeal Brief (in triplicate),

Attached is Appellant's revised Appeal Brief (in triplicate),
containing a Certificate of Service on the last page thereof,
containing Appellant's Appendix of the Claims attached thereto,
Appellant's Certificate of Mailing.

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AND FEDERAL APPEALS
AND REFERENCES

25 Appeal Brief
10/7/03
H. J. Palabrica

The Applicant thanks the Office for the careful attention given to the submitted Appeal Briefs.

The Office's notification states,

"a. The statement of Status of Amendments is improper. Any arguments that the applicant may wish to make regarding these amendments should be discussed in Argument section rather than in this section. There is no Appendix B. contrary to the statement in this section."

Appellant has corrected the statement of the Status of Amendments.

Appendix B is corrected.

The Office's notification states,

"b. The Summary of Invention mischaracterizes the claimed invention. Applicant states that the current application is a division of parent application, S/N 07/760,970. The Appeal Brief describes the invention as a method to control the production of desired products (such as "heat"). On the other hand, the parent application discloses the invention as a "novel cold fusion device" that is capable of producing "excess heat". The term, "heat" can mean "joule heat" which is different from "excess heat" produced by the so called cold nuclear fusion device."

With all due respect, the Examiner is incorrect. The above-entitled action is a divisional of Serial No. 07/760,970. The following is from the **United States Court Of Appeals For The Federal Circuit**, Case 00 - 1108 (Serial No. 07/760,970) In Re Mitchell R. Swartz, Appeal from the Board of Patent Appeals and Interferences (No. 94-2920), APPEAL BRIEF, at (8) STATEMENT OF FACTS WITH REFERENCES (Rule 28(e)).

The Present Invention

3. Appellant (hereinafter Applicant or Inventor) taught in the original specification and claims how his apparatus works and claimed the invention (**1).

Claim 25. In a process for producing a nuclear fusion product from an isotopic fuel using a material, a two-stage method for controlling said reaction which includes in combination:

supplying an isotopic fuel to said material, loading said isotopic fuel into said material to saturate said material, then creating a change in the active quantity of said fuel within said material by desaturation, creating thereby a catastrophic diffusion flux of said isotopic fuel within said material[s]."

...
The teachings, and claim 25, involve, and the invention at issue in this case generally speaking is, a two-stage process involving hydrogen loading into a specialized metal electrode followed by internal flux (flow) within the metal. This two-stage system is as important and fundamental as the critical difference between burning gasoline and its controlled ignition within an internal combustion engine. After the initial loading, said flow (or flux) of hydrogen takes place (pages 15-16,19-22,28,33-34; S.N.07/760,970) until the previously-loaded palladium is spent of its deuterons or the material is otherwise damaged.

4. Barriers are used to strategically inhibit the flow (Appendix C; A55-A59). In the preferred embodiment, the cathode is surrounded in coaxial fashion by a deuteron diffusion barrier (labelled 50 in figure 7) and an expansion barrier (labelled 40). The cathode is axially-fed the deuterons. These are obvious features of great utility. As taught in the original specification, in the preferred embodiment, this two-stage process is housed in a structural support system (labelled 20).

5. The original specification and claims of the present invention also taught and claimed improvement of heat removal and integration of smaller units into larger assemblies [figure 12]. In the preferred embodiment, the apparatus described by the present application is a device shaped like a fuse and can be easily placed into, or removed from, an assembly. The damage or rundown of one unit "is thus easily exchangeable by replacement with a functioning one", which is re-inserted, as taught in the above-entitled application, into mechanical restraining, electrical, and thermal connectors (labelled 94, 96, and 97) and further restrained with clips (labelled 92).

6. The original specification and claims of the present invention also taught and claimed a separation system (figure 18), to extract an precise product - another feature of great utility. A magnetic field inhomogeneity, based upon the differential magnetic susceptibilities [cf. Swartz and Straus Declarations; A10-A21], creates forces which make this a

"non-linear device in the sense that the containment field distribution is spatially non-uniform. ... the ... invention is therefore a chemical collection device."

[Straus Declaration 1994]

These are obvious features of great utility.

It is important to note that claims 25 through 48 did not discuss cold fusion nor "excess heat." Furthermore, claims 35 through 45 do not discuss any sort of nuclear, or fusion, reaction. Therefore, such new and disingenuous arguments on the part of the Office or the Appeals Board would not be consistent with the record.

The Office's notification states,

"The Summary includes subject matter not found in the specification (see page 7, last three paragraphs)."

The Applicant has corrected this, and removed the citation from this section.

The Office's notification states,

"c. The recitation and scope of Issues is improper. MPEP 1206 states that each stated issue should correspond to a separate ground of rejection which the appellant washes the Board to review. The statement of issues should not include any argument concerning the merit of the issues. For example, a proper way of phrasing an issue is as follows: 'Whether claims 1, 5, 8, 10, 14 and 21, 30 are unpatentable under U.S.C. 101 because the claimed invention is inoperative and therefore lacks unity.' Applicant improperly includes other issues not relevant to the grounds of rejection used by the examiner, e.g., U.S. Constitution."

The Applicant has corrected this as requested. The Applicant has removed the offending references to the " U.S. Constitution." and reserves his rights to take the Constitutional issues to the Federal Court, First Circuit by this unconstitutional action of the Office and/or Board censoring the very document which enables the Office.

The Office's notification states,

"d. The statement on Grouping of Claims is improper because it includes arguments as to why certain claims do not stand or fall together. These arguments should be in the Argument section."

The Applicant has corrected this as requested.

The Office's notification states,

"e. The discussion of applicant's contentions in the Argument section is improper. MPEP states, for example, that for each rejection under 35 U.S.C., first paragraph, the argument shall specify the errors in rejection and how said first paragraph is complied with, including as appropriate, how the specification and drawings, if any, a) describe the subject matter defined in each of the rejected claims; b) enable any person skilled in the art to make and use the subject matter defined by each of the rejected claims; and c) set forth the best mode contemplated by the inventor of carrying out the invention. Applicant does not conform to this requirement of cited example of showing how his application complies with the first paragraph"

Applicant has corrected this, as requested.

The Office's notification states,

Not ail grounds for rejection of claims are addressed. For example, the examiner rejected new claims 24, 26 and 28 as non enabling because the specification does not describe how and in what manner the claimed redistribution of isotopic fuel causes the so called impact on a fuel impenetrable barrier. This rejection is not specifically addressed in the Appeal Brief, as well as the 35 U.S. C. 103(a) rejection of claims discussed in Section 10 of the Final Office Action, dated 2/3103.

Applicant has corrected this, as requested for the former issue. For the latter, the Appellant notes that this was already addressed in the Appeal Brief on specially pages 78 and thereafter, but also extending through and including page 95.

The Office's notification states,

The Argument section contains irrelevant arguments, e.g., for rejections that have not been made by the examiner (see page 78, last paragraph).

Applicant has corrected this, as requested.

The Office's notification states,
"The Argument section does not include arguments as to why certain claims listed in the Grouping of Claims section do not stand or fall together."

Applicant has corrected this, as requested.

The Office's notification states,
"f. Appendix A is incorrect because some claims are recited differently from those finally rejected, e.g., claims 1 and 10."

The Applicant has put the correct claims in Appendix "A". Appellant attempted to call the Examiner who refused to address this matter to explain what he was speaking of. The Examiner was reminded that this was for the Board. He refused to discuss it.

The claims are those claims before Final. Attached is copies of the Post Cards stamped by the Office proving receipt [Exhibit "B", also Appendix "C"].

Applicant also presented amendments after Final to comply with the Examiner's suggestions/comments. Attached is the Post Card stamped by the Office showing receipt [Exhibit "B"]. This Exhibit proves Amendments were submitted after Final, and were timely received by the Office.

The claims before Final are in Appendix "A".

The amendments submitted after Final are in Appendix "B".

Thank you for your time and attention to this important matter.

If anything further is needed, please let me know at the earliest convenience.

Sincerely,



Mitchell R. Swartz, MD, ScD

#25
10/7/13

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ORIGINAL
September, 2003

APPEAL BRIEF

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APPEAL BRIEF

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(3) Statement Of Claims

(1) Real Party In Interest

The party named in the caption of the brief is the real party in interest:

Mitchell R. Swartz, ScD, MD, EE, Appellant, *pro se*

(2) Related Appeals And Interferences

Appellant is not certain if Appellant's other cases presently or previously before the Board may or may not directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal. Appellant has complied with each previously directive of the Board.

The concept of loading of hydrogen in metals, in the heat generated, in the measurement of said loading, and in several of Appellant's inventions associated with that subject matter in the following.

Appeal No. 98-2593 regarding the specification and claims of application serial number 08-406,457

Appeal No. 97-3208 regarding the specification and claims of application serial number 07-339,976

Appeal No. 94-2921 regarding the specification and claims of application serial number 07-371,937

Appeal No. 94-2920 regarding the specification and claims of application serial number 07-760,970

Appeal No. 03- (just filed, number not known) regarding the specification and claims of application serial number 09-748,695

(5) Summary of Decision

The In: **(3) Status Of Claims**

Claims 1, 5-8, 10-14, 21-30 (all claims) stand rejected pursuant to 35 U.S.C. 112, first paragraph.

Claims 1, 5-8, 10-14, 21-30 stand rejected pursuant to 35 U.S.C. 112, second paragraph.

Claims 1, 5-8, 10-14 and 21-30 stand rejected pursuant to 35 U.S.C. 102.

Claims 1, 5-8, 10-14 and 21-30 stand rejected pursuant to 35 U.S.C. 103.

Claims 1, 5-8, 10-14, 21-30 stand rejected pursuant to 35 U.S.C. 101.

Claims 2-4, 9, and 15-20 were cancelled without prejudice.

(4) Status Of Amendments

Amendments to Claims 1, 5, 10, 21, 22, 24, 26 and 28 have been timely filed [pursuant to Rule 116] for entry, so as to place the above-entitled application in better form for this appeal by materially reducing and simplifying the issues. The amendments are listed herein, as Appendix B.

A Petition to the Commissioner was made, and the Examiner's rejections of claims 5 and 22 were withdrawn on May 28, 2003.

WJ!

(5) Summary Of Invention: useful because it will enable the inventor to claim the invention at issue in this case, '69I, claimed by Claims 1, 5-8, 10-14, 21-30, is generally speaking a method to control hydrogen loaded into a metal such as palladium. Such loading by hydrogen occurs much as a sponge fills (loads) with water. This invention uses the hydrogen as a fuel, and for each device usually one isotope of hydrogen (protium or deuterium) is chosen (loaded into nickel or palladium, respectively).

The invention is a method to control the production of the desired products (such as heat) which includes in combination loading the hydrogen using a first applied electric field, and then at a later point in time applying a second electric field to redistribute said isotopic fuel within said material, with means to obstruct the flow of the loaded hydrogen.

Thus, as the original specification states (page 1, lines 7-8), this subject matter is defined as a method

"to control reactions involving isotopic fuels within a material, such as hydrogen within palladium."

As the original specification states (page 2, lines 16-21), the subject matter involves a loaded material ...

"... such as palladium which has been electrochemically loaded with deuterium, but it has relevance as well, to hydrogen loading, nuclear fusion, and other reactions in loaded metals such as titanium or palladium filled with deuterium, and to the broader field of metallurgy and engineering in or about metals, including Groups IVb, Vb, and some rare earths."

As the original specification states (page 1, lines 10-12), ...

(t)he method and apparatus uses at least two non-parallel electric-fields to control the loading into the material and redistribution of the isotopic fuel within the material."

As the original specification states (page 3, lines 4-14), the present invention is quite useful to those skilled in the art because present typical methods of loading have

"... problems. First, the desired reactions are not well controlled. The proven difficulties of loading, the slow initiation of the desired reactions, and the difficulty in controlling the reactions has limited research and development of this technology. Second, prior to the desired reactions, the cathodes must be filled with deuterons to concentrations which require significant times of charging. Third, palladium, the preferred metal of these reactions, is expensive. Fourth, the rates of the desired reactions are very low in the steady state."

As the In addition, the present invention is useful, because it will enable any person skilled in the art to make and use the subject matter defined by each of the rejected claims (original specification states (page 3, lines 17-22) so as to:

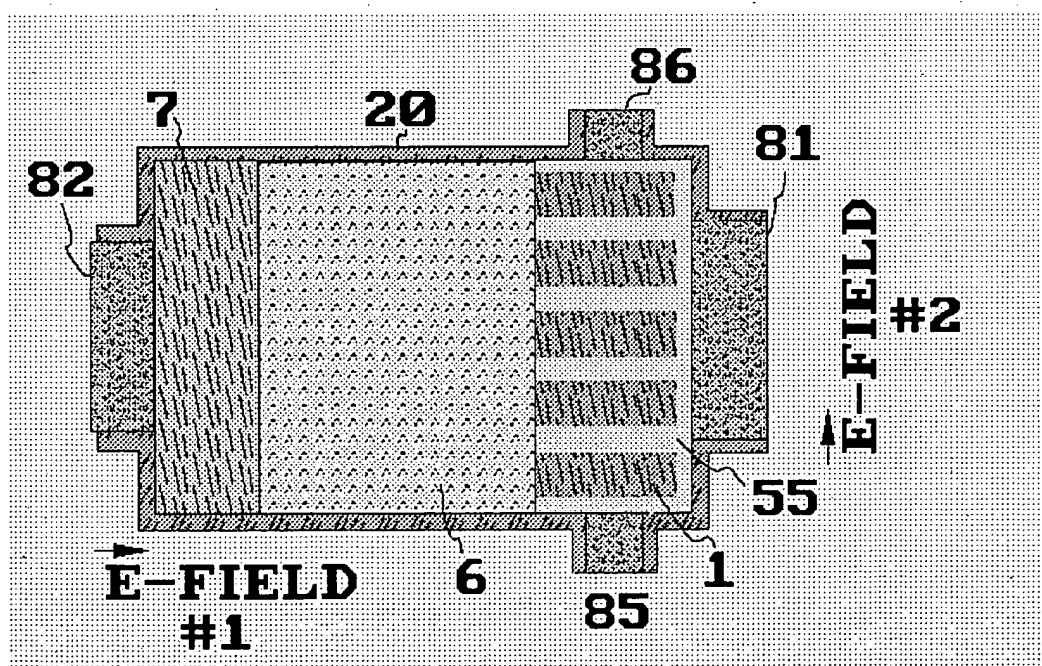
'to control and enhance desired reactions. ... minimize the required quantity of expensive palladium used ... (and) maximize the local quantity of the hydrogen within the palladium.'

The original specification teaches (page 4, line 26 through page 5, line 3), the best mode contemplated by the inventor of carrying out his invention

"...label 1 represents the metallic cathode, usually palladium in the preferred configuration. ... The label 7 represents the anode which in the preferred embodiment is composed of palladium. The label 6 represents the solution consisting in the preferred embodiment of a gel containing antidesiccant, in combination with LiOD, palladium salts, and heavy water (D₂O)."

As the original specification teaches (page 5, lines 5-12) for those skilled in the art the subject matter defined by each of the rejected claims.

"The power supply and control unit consists of a current source and reactor control device as described in Swartz (1989) ... capable of filling the cathode with deuterium from an aqueous solution, or one enabling deuterated metals loaded by codeposition of deuterium and palladium."



As the original specification teaches (page 5, lines 7-9), the best mode contemplated by the inventor of carrying out his invention is:

"The application of said power source creates an applied electric field intensity which produces cation flow towards the cathode."

The original specification (page 5, lines 9-12), continues with the teaching of **"There results in the near cathode solution (labelled as 5 in figure 1) a buildup of deuterons, and a low dielectric constant (gas bubble) layer. The bubbles are labelled as number 10 in figure 1. There may be spikes or on the cathode (labelled as 11 in figure 1)."**

The original specification teaches (page 5, lines 14-17), the best mode contemplated by the inventor of carrying out his invention using the first applied electric field intensity (referring to the figures).

"Figure 2 is a crosssectional drawing (t)his device has two orthogonal applied electric fields. The first (labelled E-field number 1 in the the figure) is that which is applied to charge the palladium with deuterons."

The original specification continues (page 5, lines 17-22) with the best mode contemplated by the inventor of carrying out his invention using the second applied electric field intensity.

"The second applied electric field intensity is delivered after full charging has been achieved. In the figure the anode and cathode are labelled as 7 and 1. The electrolyte solution or gel is labelled as 6. The connections for the first electric field are labelled as 81 and 82. The connections for the second electric field are labelled as 85 and 86. The mechanical casing is labelled 20."

The original specification teaches (page 5, lines 23-25) the best mode contemplated by the inventor of carrying out his invention with respect to the impermeable barrier (referring to the figures).

"The deuteron impermeable barrier is comb-shaped in this preferred configuration, and is labelled 55 in figure 13."

The original specification teaches (page 6, lines 1-5) and elaborates for those skilled in the art to make and use the subject matter defined by each of the rejected claims.

"The cathode in this preferred configuration is divided into parallel slabs. Between these slabs alternate deuteron-impermeable barriers. Application of the second electric field causes the deuterons already loaded in the cathode to redistribute, but the deuteron-impermeable barrier(s) act to enhance the desired reactions."

As the original specification teaches (page 6, lines 7-13), the best mode contemplated by the inventor of carrying out his invention

"Each device is equipped with orthogonal applied electric fields. The second applied electric field intensity is delivered after full charging. These devices each contain a cathode (labelled 1), intradevice gel containing lithium and palladium deuterioxide (labelled 6), and anode (labelled 7)."

The original specification teaches (page 7, lines 1-4), the best mode contemplated by the inventor of carrying out his invention

"The result is the piling up of deuterium at the deuteron-impermeable barriers (labeled 55). The heat energy is directed out via the the heat pipes and the thermal bus."

In one embodiment, as the original specification continues, detailed instructions are taught for producing the desired result (page 6, lines 15-24),

"These CAM devices are inserted, similar to a fuse onto a holding board, held in place by clips ... The three CAM device are connected to a microprocessor control system... Said apparatus has an electrical bus to connect the anodes which are connected to the anodic connectors (labelled 82). Said apparatus has an electrical bus to connect the cathodes ... The cathodic system buses (106 and 107) are electrically shorted together during the deuterium charging."

In another embodiment, as the original specification teaches, the heat product is removed (page 6 lines 26-28),

"Said apparatus has a thermal bus connected to the heat pipes which are held in a mechanical connecting system (labelled 20)."

Still here -
extraneous

Each of these features, and those of the original specification of which this is the divisional has obvious great utility.

The original specification describes the subject matter defined by each of the rejected claims, and enables any person skilled in the art to make and use the subject matter defined by each of the rejected claims, and sets forth the best mode contemplated by the inventor of carrying out his invention.

The usefulness of the original specification was demonstrated to be correct at the time of the original filing in Fusion Technology (of the American Nuclear Society) and elsewhere which demonstrate operability and utility [validation]. These include, but are not limited to, the following: Swartz (1998), Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85, Swartz. (1997), Fusion Technology, 31, 63-74.

ISSUES

35 U.S.C. 112 (first paragraph)

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §112 because the claimed invention is operative.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §112 Pursuant to the Standards of Review Involving Testimony of Declarants Skilled-in-the-art.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §112 Pursuant to the Standards of Review Involving Including Peer-reviewed Publications.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §112 in the disingenuous claim by the Office states, that the present invention resides, in a "non-existent field".

35 U.S.C. 112 (second paragraph)

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §112 (second paragraph) because the claimed invention is operative and clearly claimed.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §112 (second paragraph) Pursuant to the Standards of Review Involving Testimony of Declarants Skilled-in-the-art.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §112 (second paragraph) Pursuant to the Standards of Review Involving Including Peer-reviewed Publications.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §112 (second paragraph) in the disingenuous claim by the Office states, that the present invention resides, in a "non-existent field".

35 U.S.C. 102

Whether the subject matter sought to be patented as defined by claims 1, 5-8, 10-14, 21-30 is novel.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §102 because the subject matter sought to be patented as defined by claims 1, 5-8, 10-14, 21-30 is novel.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §102 pursuant to the Standards of Review Involving Testimony of Declarants Skilled-in-the-art.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §102 pursuant to the Standards of Review Involving Including Peer-reviewed Publications.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §102 pursuant to the Standards of Review Involving Reading of the Claims.

35 U.S.C. 103

Whether the subject matter sought to be patented as defined by claims 1, 5-8, 10-14, 21-30 is non-obvious.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §103 because the subject matter sought to be patented as defined by claims 1, 5-8, 10-14, 21-30 is non-obvious.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §103 pursuant to the Standards of Review Involving Testimony of Declarants Skilled-in-the-art.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §103 pursuant to the Standards of Review Involving Including Peer-reviewed Publications.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §103 pursuant to the Standards of Review Involving Reading of the Claims.

35 U.S.C. 101

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §101 because the claimed invention is operative and therefore has utility.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §101 Pursuant to the Standards of Review Involving Testimony of Declarants Skilled-in-the-art.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §101 Pursuant to the Standards of Review Involving Including Peer-reviewed Publications.

Whether claims 1, 5-8, 10-14, 21-30 are patentable under U.S.C. §101 Pursuant to the Standards of Review Involving Reading of the Claims.

1.192c(6)(v)

Whether the Office has shown good-faith execution of MPEP 707.07(j) and MPEP 706.03(d) following duly-served requests for entry of such suggestions.

Whether the Office has shown good-faith execution of Office rules and motto by unfairly denying entry of amendments.

Whether the Office has shown good-faith execution of Office rules by purporting "new material" which was actually present in the original specification of the above-entitled application.

improper

(7) Grouping Of Claims. ARGUMENTS

Claim 1 distinguishes and limits the invention to a method to control the production of a product produced by a loaded material that includes applying an electric field to load said isotopic fuel into said material, loading said material with said isotopic fuel, thereafter applying a second electric field in a non-parallel direction to the first applied electric field, producing redistribution of said isotopic fuel within said loaded metal, thus, thereby controlling the product produced.

Claim 10 distinguishes and limits the invention to a method to control the production of a product produced by a loaded material that includes applying an electric field to load said isotopic fuel into said material, loading said material with said isotopic fuel, thereafter applying a second electric field in a non-parallel direction to the first applied electric field, thereby effecting redistribution of the fuel within said loaded material.

Claim 21 distinguishes and further limits the invention to a method to effect redistribution of an isotope of hydrogen in a material which includes applying an electric field to load said isotope of hydrogen into said metal, loading said metal with said isotope of hydrogen, thereafter applying a second electric field in a non-parallel direction to the first applied electric field, thereby distributing said isotope of hydrogen within said loaded metal.

The appealed claims do not stand or fall together. The Arguments for such include the following.

ARGUMENTS
35 USC §112 first paragraph REJECTION

For each rejection under 35 U.S.C. 112, first paragraph, the Appellant below does fully and completely specify the many errors in the rejection, including how Appellant (then Applicant) timely provided evidence surmounting the Examiner's incorrect arguments and cited law surmounting the Examiner's arguments that are without legal foundation and not the normal standards of review.

The Appellant's arguments can be divided into three groups. First, those errors of the Office that involve the invention itself. Second, there are those errors which involve the art to which the Office does refer. Third, the Appellant will discuss the standards of review from which the Office's behavior does deviate.

Claims 1, 5-8, 10-14, 21-30 have been rejected under 35 U.S.C. 112 by the Examiner, based upon the Examiner's incorrect opinion that the "environment" in which the above-entitled invention operates "does not exist", based upon flawed reference to other old art ("FP" or "F+P") and by systematically ignoring Appellant's (then Applicant's) submitted Declaration of fact and accompanying Exhibits proving the Office wrong or disingenuous.

The appealed claims do not stand or fall together.

Claims 1, 10, and 21 are separately patentable and do not stand or fall together because they are materially distinct with respect to 35 USC 112 first paragraph.

Claims 1, 10, and 21 are separately patentable because they are not unduly multiplied, have separate limitations, and are required because the invention described by the original specification of the above-entitled application is very complex.

The Appellant submits that the first paragraph of 35 U.S.C. 112 is complied with fully and completely, for reasons discussed in detail below.

The present invention is useful and has operability, is taught in the original specification, and is claimed by the claims.

The present invention has operability and utility, similar to the other inventions of Appellant which have been before the Board. The present invention, works exactly as taught in the original specifications and claims.

The present invention's enablement is borne out by *de jure* by peer-reviewed publications.

The present invention's enablement is borne out by the *de facto* Declarations affirming to said operability and utility (which together manifest enablement).

The original specification described the subject matter defined by each of the rejected claims, and enables any person skilled in the art to make and use the subject matter defined by each of the rejected claims, and sets forth the best mode contemplated by the inventor of carrying out his invention.

The present invention's enablement is known to the Office through said Affiants and said peer-reviewed publications. In addition, the Examiner received additional data, such as the Affiants have witnessed, proving that the Examiner disingenuously (and systematically) purports that the Appellant's invention(s) cannot heat water (or or control loading, or measure temperature, etc.) This disparagement is utterly false. The Appellant (then Applicant) submitted timely data, Declarations, Exhibits, peer-reviewed articles, and other information PROVING that the Examiner was wrong. In turn, the Examiner has ignored this, and merely come up with further flawed arguments which have also been rebutted.

May it please the Board that the Exhibits, Declarations and pleadings proving the Examiner's arguments are flawed were timely submitted. The Board's attention is directed to the many returned self-addressed stamped postcards bearing the imprimatur of the stamp of the Patent Office's Post Office documents timely receipt.

The Office is substantively and systematically non-responsive to the submitted Declarations of Appellant from 11/4/02, 3/24/03, and 4/30/03.

The Office is substantively non-responsive to much of Applicant's "Response to (the Office's Paper dated) 9/5/02" (dated 11/4/02 and resubmitted 12/4/02).

The Response by the Office is substantively non-responsive to almost all of Applicant's several packets of Exhibits Rebutting Examiner from submitted November 4, 2002 and then resubmitted 12/4/02.

The Response by the Office is absolutely non-responsive to Applicant's several Exhibits rebutting Examiner's new flawed arguments made after final, submitted March 24, 2003.

The Response by the Office is substantively non-responsive to Applicant's submitted documents from application '970 (to which the Examiner did refer) because said documents did rebut the Examiner [including those dated 11/2/93 and 4/23/94, submitted November 4, 2002 and then resubmitted 12/4/02].

The Response by the Office is absolutely non-responsive to Applicant's Declaration of March 30, 2003. Said document did rebut the new matter and new arguments used by the Examiner after Final.

In place of a cogent step-by-step substantive response, the Examiner has handwaved, and even presented new arguments at Final [also deeply flawed and simply wrong for several reasons including accuracy, quality, and relevance]. The Examiner knew of said late delivered arguments before Final [consistent with the fact that the Office has used them before and they are from 1989 to 1990, and were even discussed for their errors before this Board previously]. The Examiner KNEW of the references, and knew that they were flawed but cited them late so that the Applicant could not respond.

In fact, as a result of ignoring the Evidence previously submitted by the Applicant, the Examiner merely (and maliciously) repeats several errors of fact, errors of science, and makes new legal errors. Said errors of fact, said scientific errors, etc., are addressed in detail below with specificity.

The Board should not permit the Applicant to be continuously denied his constitutionally protected rights based upon errors and knowingly false newspaper articles and inaccurate reports from long ago.

The Office states,

"Claims 1-5, 7, 9-15, 17, 19 and 20-24 are rejected under 35 U.S.C. 112, first paragraph' for the reasons given in ... section 6 above."

THE TRUTH - The Purported Reasons Do Not Relate To The Present Application

In place of a cogent step-by-step substantive response, the Office handwaves and presents new arguments [some of which are deeply flawed and simply wrong for several reasons - accuracy, quality, and relevance]. This is improper and not consistent with the standards of review. In fact, as a result of ignoring the Evidence, the Examiner repeats again several general errors of fact, this time compounded into scientific errors. The general errors and the scientific errors are addressed in detail below, and again rebutted with specificity.

There is operability. The invention at issue in this case, '691, claimed by Claims 1, 5-8, 10-14, 21-30, is a method to control the production of the desired products (such as heat) which includes in combination loading the hydrogen using a first applied electric field, and then at a later point in time applying a second electric field to redistribute said isotopic fuel within said material, with means to obstruct the flow of the loaded hydrogen. As the original specification states (page 1, lines 10-12), ...

(t)he method and apparatus uses at least two non-parallel electric-fields to control the loading into the material and redistribution of the isotopic fuel within the material."

The original specification teaches (page 4, line 26 through page 5, line 3), the best mode contemplated by the inventor of carrying out his invention

"...label 1 represents the metallic cathode, usually palladium in the preferred configuration. ... The label 7 represents the anode which in the preferred embodiment is composed of palladium. The label 6 represents the solution consisting in the preferred embodiment of a gel containing antidesiccant, in combination with LiOD, palladium salts, and heavy water (D2O)."

As the original specification teaches (page 5, lines 5-12) for those skilled in the art the subject matter defined by each of the rejected claims.

"The power supply and control unit consists of a current source and reactor control device as described in Swartz (1989) ... capable of filling the cathode with deuterium from an aqueous solution, or one enabling deuterated metals loaded by codeposition of deuterium and palladium."

As the original specification teaches (page 5, lines 7-9), the best mode contemplated by the inventor of carrying out his invention

"The application of said power source creates an applied electric field intensity which produces cation flow towards the cathode."

The original specification (page 5, lines 9-12), continues with the teaching of

"There results in the near cathode solution (labelled as 5 in figure 1) a buildup of deuterons, and a low dielectric constant (gas bubble) layer. The bubbles are labelled as number 10 in figure 1. There may be spikes or on the cathode (labelled as 11 in figure 1)."

The original specification teaches (page 5, lines 14-17), the best mode contemplated by the inventor of carrying out his invention using the first applied electric field intensity (referring to the figures).

"Figure 2 is a crosssectional drawing (t)his device has two orthogonal applied electric fields. The first (labelled E-field number 1 in the the figure) is that which is applied to charge the palladium with deuterons."

The original specification continues (page 5, lines 17-22) with the best mode contemplated by the inventor of carrying out his invention using the second applied electric field intensity.

"The second applied electric field intensity is delivered after full charging has been achieved. In the figure the anode and cathode are labelled as 7 and 1. The electrolyte solution or gel is labelled as 6. The connections for the first electric field are labelled as 81 and 82. The connections for the second electric field are labelled as 85 and 86. The mechanical casing is labelled 20."

There is operability. The original specification teaches (page 5, lines 23-25) the best mode contemplated by the inventor of carrying out his invention with respect to the impermeable barrier (referring to the figures).

"The deuteron impermeable barrier is comb-shaped in this preferred configuration, and is labelled 55 in figure 13."

The original specification teaches (page 6, lines 1-5) and elaborates for those skilled in the art to make and use the subject matter defined by each of the rejected claims.

"The cathode in this preferred configuration is divided into parallel slabs. Between these slabs alternate deuteron-impermeable barriers. Application of the second electric field causes the deuterons already loaded in the cathode to redistribute, but the deuteron-impermeable barrier(s) act to enhance the desired reactions."

As the original specification teaches (page 6, lines 7-13), the best mode contemplated by the inventor of carrying out his invention

"Each device is equipped with orthogonal applied electric fields. The second applied electric field intensity is delivered after full charging. These devices each contain a cathode (labelled 1), intradevice gel containing lithium and palladium deuterioxide (labelled 6), and anode (labelled 7)."

The original specification teaches (page 7, lines 1-4), the best mode contemplated by the inventor of carrying out his invention ... and

"The result is the piling up of deuterium at the deuterium-impermeable barriers (labeled 55). The heat energy is directed out via the the heat pipes and the thermal bus."

There is operability. In one embodiment, as the original specification continues, detailed instructions are taught for producing the desired result (page 6, lines 15-24),

"These CAM devices are inserted, similar to a fuse onto a holding board, held in place by clips ... The three CAM device are connected to a microprocessor control system... Said apparatus has an electrical bus to connect the anodes which are connected to the anodic connectors (labelled 82). Said apparatus has an electrical bus to connect the cathodes ... The cathodic system buses (106 and 107) are electrically shorted together during the deuterium charging."

In another embodiment, as the original specification teaches, the heat product is removed (page 6, lines 26-28),

"Said apparatus has a thermal bus connected to the heat pipes which are held in a mechanical connecting system (labelled 20)."

Each of these features, and those of the original specification of which this is the divisional has operability. The operability, and sefulness, of the original specification was demonstrated to be correct at the time of the original filing in Fusion Technology (of the American Nuclear Society) and elsewhere which demonstrate operability and utility [validation]. These include, but are not limited to, the following: Swartz (1998), Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85, Swartz. (1997), Fusion Technology, 31, 63-74.

POINT 1: The Examiner's Communication Does Not Discuss The Invention As It Was Actually Taught, But Is Cut Of A Cloth Other Than This Invention

With the exception of a single net post, the Examiner's references do not apply to the present invention, but rather are criticism of other work in the field, "FP" (for Drs. Fleischmann and Pons), or involve experiments which were not done using the techniques taught in the original specification and claims of the above-entitled application (thereby actually indirectly proving the utility of the present Application). The Examiner deviates from the present invention, and upon his systematic inaccurate and improper reference to other art ("FP" or "F+P") which he purports did not exist or was flawed, again makes a false segue to attempt to invalidate the Applicant's independent work over more than a thirteen years which has been described in more than forty papers in peer-reviewed scientific journals.

The law states that enablement must be judged on this original specification and claims. The present invention is not the work of Pons and Fleischmann or their subject matter. The Examiner's continual referral to other much less relevant art is not really a rebuttal of this invention, but is a prejudicial attack against the Applicant, in disguise despite the Examiner's handwaving otherwise.

CONCLUSION: If the Examiner must rely upon reference to art cut of a cloth other than this specification and claims, then his position must indeed be quite weak.

POINT 2: The Absence of Evidence is Not Evidence of Absence

Several of the Office's references cited by the Examiner involve so-called purported "negative" results in that no large numbers of neutrons were observed. However, neutron emission is not expected in large amounts with these reactions (*vide infra*). Because the actual generation of neutrons is so unlikely, the absence of neutrons can not be inferred to indicate the absence of any other reaction or reactions. The absence of neutrons is not the evidence of the absence of fusion of isotopic fuels in a material.

Furthermore, not all of the art cited by the Examiner is "negative" with respect to neutrons as the Office purports. Actual "positive" evidence noted by the Examiner includes Rehn, Shani (who did monitor stimulated neutron radiation from deuterated materials after said deuterated materials were neutron-irradiated), and Faller (who did report a tritium increase). Thus, the Office's art, Rehn, Will, Shani, Faller, and others, cited by the Office, support the existence of the field.

POINT 3: The Examiners "Evidence" Has Already Been Proven Flawed [but Ignored By the Examiner]

The art supplied by the Office is outdated, not peer-reviewed, not relevant, and flawed. Such yellowed, brittle newspapers, and "ancient" reports have poor quality and cannot disprove the evidence the Applicant has presented regarding operability or utility. Several of the Examiner's references are flawed for reasons previously submitted by the Applicant, as discussed by the Applicant in the previous communication. Said so-called "negative" experiment papers from 1990-1991 contain serious errors and their errors are echoed thereafter in the Office's cited art (Huizenga, Taubes, and Jones). Simply put, these experiments were not done well and were contested in the peer-reviewed literature. Lewis, Miskelly, and Hilts have been and remain contested by scientists in published peer-reviewed literature (Miles 94B, Noninski 91, Noninski 93) and other art (Mallove 91, Milton 96). Most of the periodicals and newspapers cited by the examiner involve

merely quoting the so-called "negative results" of others, either Alibagli (eg. Hilts) or Lewis et alia (Hilts, Browne), even though they remain validly contested and, therefore, they must be weighed accordingly. Furthermore, the Applicant's inventions surmount the problems so criticized therein, and these issues have been discussed in the applicant's peer-reviewed published papers, and in the Applicant's other patent applications [*vide infra*]. Applicant has already addressed the errors of Huizenga, Jones, Morrison, Miller, etc. previously with solid substantive response, including in Federal Court [A316-317, A321].

POINT 4: Applicant's Peer-Reviewed Publications Prove Enablement

The Examiner has not been fair. For example, where are the Examiner's substantive responses to the several other publications which the Applicant has published in Fusion Technology (of the American Nuclear Society) and elsewhere which demonstrate operability and utility [validation]? These include, but are not limited to, the following: Swartz (1998), Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85, Swartz. (1997), Fusion Technology, 31, 63-74, 1997, Swartz (1999), "Generality of Optimal Operating Point Behavior in Low Energy Nuclear Systems", Journal of New Energy, 4, 2, 218-228 (1999), Swartz, 1997, "Consistency of the Biphasic Nature of Excess Enthalpy in Solid State Anomalous Phenomena with the Quasi-1-Dimensional Model of Isotope Loading into a Material", Fusion Technology, 31, 63-74, Swartz, 1998 "Optimal Operating Point Characteristics of Nickel Light Water Experiments", "Proceedings of ICCF-7", and Swartz, 1997, "Biphasic Behavior in Thermal Electrolytic Generators Using Nickel Cathodes", IECEC 1997 Proceedings, #97009; Swartz, 1998. Where is the Examiner's Response to Swartz, 1998, Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85?

Where are the Examiner's substantive responses to the Applicant's publications in peer-reviewed journals with evidence demonstrating that he has correctly taught operability and enablement regarding loading and loading flux? These include Swartz. M., 1994 "Catastrophic Active Medium Hypothesis of Cold Fusion", Vol. 4. "Proceedings: "Fourth International Conference on Cold Fusion", sponsored by EPRI and the Office of Naval Research, and Swartz, M., 1997, "Hydrogen Redistribution By Catastrophic Desorption In Select Transition Metals", Journal of New Energy, 1, 4, 26-33, but also Swartz, M., 1998, Transactions of the American Nuclear Association, Nashville, 78, 84-85, Swartz, M., "Quasi-One-Dimensional Model of Electrochemical Loading of Isotopic Fuel into a Metal", *Fusion Technology*, 22, 2, 296-300 (1992), Swartz, M., "Possible Deuterium Production from Light Water Excess Enthalpy Experiments Using Nickel Cathodes", *Journal*

of *New Energy*, 1, 3, 68-80 (1996), M. R. Swartz, "Generalized Isotopic Fuel Loading Equations", *Cold Fusion Source Book, International Symposium On Cold Fusion And Advanced Energy Systems*", Ed. Hal Fox, Minsk, Belarus, May (1994); Swartz, M., "Isotopic Fuel Loading Coupled to Reactions at an Electrode", Vol. 4, Proceedings: *Fourth International Conference on Cold Fusion*", *ibid.*, 33 (1994); Swartz, M., "Isotopic Fuel Loading Coupled To Reactions At An Electrode", *Fusion Technology*, 26, 4T, 74-77 (December 1994), M. R. Swartz, "Catastrophic Active Medium Hypothesis of Cold Fusion", Vol. 4, Proceedings: *Fourth International Conference on Cold Fusion*", sponsored by EPRI and the Office of Naval Research, December (1993).

Where are the Examiner's substantive responses to the Applicant's publications in peer-reviewed journals which have taught standards and quality control ("Q/C") which are relevant to experimental operability? These include Swartz, 1997 ["Patterns of Failure in Cold Fusion Experiments, Proceedings of the 33RD Intersociety Engineering Conference on Energy Conversion, IECEC-98-I229, Colorado Springs, CO, 1998], Swartz 1996 ["A Method To Improve Algorithms Used To Detect Steady State Excess Enthalpy", Transactions of Fusion Technology, 26, 156-159], but confer also Swartz, "Improved Calculations Involving Energy Release Using A Buoyancy Transport Corrections", *Journal of New Energy*, 1, 3, 219-221 (1996); Swartz, "Potential for Positional Variation in Flow Calorimetric Systems", *Journal of New Energy*, 1, 126-130 (1996)]; Swartz, "Definitions Of Power Amplification Factor", *J New Energy*, 2, 54-59 (1996); Swartz, "Explanations for Differences Between Reports of Excess Heat in Solid State Fusion Reactions", *J. New Energy*, 2, (1997); Noise in Cold Fusion Systems", *J. New Energy* for Fall 1997; Swartz, "Relative Impact of Thermal Stratification", *J. New Energy*, 1, 2, 141-143 (96)); Swartz, "Some Lessons From Optical Examination Of the PFC Phase-II Calorimetric Curve", Vol. 2, Proceedings: *Fourth International Conference on Cold Fusion*", sponsored by EPRI and the Office of Naval Research, December (1993), published July 1994).

Where are the Examiner's substantive responses to the Applicant's teachings of errors and artifacts which can give rise to false indications of "excess heat", Applicant's teachings of the analysis and measurement of thermal noise (Swartz 97B, Swartz 97F, Swartz 97D), means of calibrating said signals for long term analysis (Swartz 97E, Swartz 97D, Swartz 97C, Swartz 96C), correction for Bernard instability (Swartz 96D), correction for said noise (Swartz 97F), and for other types of artifactual signal (Swartz 97C, Swartz 96A, Swartz 94C, Swartz 94D).

The Applicant would like to know how many of Applicant's publications does it take in prestigious peer-reviewed journals before the Office (or Examiner) accepts the clear, substantiated, evidence that a technology exists? Applicant's publications in peer-reviewed journals confirm operability as taught years earlier in the original specification and claims.

POINT 5: The Skilled-In-The-Art Support Applicant

Where is the Examiner's substantive response to Applicant's cited Declarations, including the the Swartz declaration, the Declaration of Straus (4/22/94), and the *Amicus Curiae* Briefs of Drs. Edmund Storms (2/21/01), Talbot Chubb (2/22/01), Eugene Mallove (3/24/00) and Hal Fox (2/21/01)? In the new arguments made by the Office, there is no substantive response or answer to the Declarations previously submitted with the Applicant's last Communication to the Examiner even though the Affiants addressed operability and utility of this invention, and even though said Declarations were referred to and addressed several times by Applicant. The Office fails to indicate which, if any, of the averments (or pages) in the Declarations and *Amicus Curiae* Briefs have been formally considered by the Office and, if so, how they reached their conclusion.

The Declarations are evidence supporting the Applicant's position, and substantially and fully address all matters and issues criticized by the Examiner, and contain averments regarding evidence establishing the utility, validation, and operability of the Applicant's claimed subject matter. The Declarations contain factual statements directly addressing how the specification adequately described the subject matter recited in the claims. They demonstrate that a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing, and that the invention operates as stated, and as explicitly taught in the original specification and claims. The Declarations prove that the Applicant taught in the original specification and claims how his apparatus works and claimed the invention.

The Affiants, skilled-in-the-art, state that the "environment" in which the above-entitled invention operates "does exist" and that there is no evidence of "heat" and "loading". The Declarations include the Straus (4/22/94), Swartz, and other Declarations, including but not limited to the *Amicus Curiae* Briefs of Edmund Storms (2/21/01), Talbot Chubb (2/22/01), Eugene Mallove (3/24/00) and Hal Fox (2/21/01) and Affiants who have been the Office's own witnesses.

The Applicant would like to know how many Declarations does it take before the Office (or Examiner) accepts the clear, substantiated, evidence that a technology exists? The law says one. The Examiner will not answer and ignores dozens.

CONCLUSION: The Declarations remain ignored in their factual content because they rebut the Offices' erroneous position about operability and utility. Validation occurs when scientists actually skilled, and working, in the state-of-the-art state it to be so. Scientists write the technical papers which undergo peer-review, file the patents applications, and attend international conferences, disagree with the Examiner. Given that in this case there has been no response to, or dispute of, said Declarations the Office is obligated by law to assume that all Declarants assertions are true [Lewis v. Bours, 119 Wn.2d 667, 670, 1992], and therefore, the Examiner has erred by failing to consider those skilled-in-the-art who counter the rejection under 35 U.S.C. §112 and §101.

POINT 6: The Literature Supports The Applicant

Where is the Examiner's Response to the more than 300 publications which the Applicant has sent the Office taken from peer-reviewed journals? This has been several hundred pounds of Exhibits, including over 40 of the Applicant's own peer-reviewed papers (several published by the American Nuclear Society, *Fusion Technology*)? Instead of a substantive response, in the new arguments made by the Office, there is ignoring of data, Exhibits, and Declarations, which the Applicant has supplied. The Exhibits constitute significant, growing reputable evidence of record which easily overcomes the few "negative" showings in the Office's ancient references, allegedly "disproving" the concept of "cold fusion". In contrast to the few "nay-sayers" the Office cites over and over, and in contrast to the "older" books, papers, and newspapers which cite failed experiments to which the Office refers to in its new argument, stand the Applicant's submitted original specification and supporting published papers, facts, Exhibits, and Declarations which demonstrate both the quality and quantity of corroborations of the existence of these reactions. Applicant's peer-reviewed published literature in series of published reports has more evidentiary value than the few "negative" less-credible recycled, older reports cited by the Examiner which do not even mention Applicant's work.

Where is the Examiner's Response to the fact that the U.S. Electric Power Research Institute (EPRI) has obtained positive results (Swartz 97A), as has NASA (Neidra 96A, Neidra 96B), the French atomic energy agency [confirming the cold fusion effect as originally reported by Dr. Fleischmann and Pons (Lonchampt 97)], and many US laboratories including US NAVY? Instead, the Office relies on its rebutted "reports" from "science" reporters and those competing for Federal funds, all of whom do not even refer to the present invention. Nor have they been sworn in, or have been proven to be an expert, as the Applicant has done with his Declarants.

55. 40. Where is the Examiner's Response to Applicant's citation of Dr. Miles reports that detection near commensurate "ash" (i.e. order-of-magnitude expected amounts or greater) consistent with a nuclear process was found linking the formation of helium-4 to the excess heat using metal flasks which were used to capture the helium-4 linked to the excess heat [Miles (1993); also "US Navy Continues Positive Efforts Supporting Cold Fusion"; COLD FUSION TIMES (pages 1-2) volume 1, number 4 (1994)]?

"Our previous results present a correlation between the measured excess power and helium production in D_2O -LiOD electrolysis cells using palladium cathodes. The measured rate of 4He production (10^{11} - 10^{12} $^4He/s \cdot W$) is the correct magnitude for typical deuteron fusion reactions that yield helium as a product.

***** Metal flasks were used to collect the electrolysis gas samples in order to minimize atmospheric contamination due to helium diffusion through glass. The helium concentrations in Table II support a detection limit of approximately 10^{13} $^4He/500$ mL in these experiments as reported previously. Mean values for the measured helium concentrations in these control experiments are 4.4 ± 0.6 ppb or $5.1 \pm 0.7 \times 10^{13}$ $^4He/500$ mL. ... For experiments producing excess power, five helium measurements using these same metal flasks have been completed. These experiments yield a mean value of $2.0 \pm 0.5 \times 10^{11}$ $^4He/s \cdot W$ after correcting for background levels of helium measured in control studies (Table II). This value is once again the correct magnitude for typical deuteron fusion reactions that yield 4He as a product."

["Heat And Helium Measurements In Deuterated Palladium"; M. M. Miles and B. F. Bush, Chemistry Division, Naval Air Warfare Center Weapons Division China Lake, CA USA (12/1993)]

Where is the Examiner's Response to Applicant's citation of confirmations of Dr. Miles' nuclear (helium-4) findings? Excess heat, tritium generation, and other products, produced by the desired reactions, have been found by scores of groups supporting Applicant's claims at the time these patent applications were filed. The reactions products (particles and excess energy) have been elicited both by the electrodeposition of deuterons onto palladium cathodes and by temperature cycling of deuterided palladium or titanium. Many of the laboratories publishing such results are listed in a table in Dr. Mallove's book on pages 246 through 248. The chief product of the cold fusion reaction(s) is excess heat [Mills 91, 94; Mizuno 96D; Storms 93; Arata 90; Swartz 97B; Mizuno 96D; Celani 96A; Storms 96A; Pons 90; Notoya 93; Fleischmann 89, 90; Mallove (Fire from Ice); Lonchampt 96, 97; Oriani 96; Mizuno 94; Bockris 90; Szpak 91B, 96A; McKubre 91; Will 91; Nobel 95 and Miles 94C, 96B], but other released particles have also been reported {including tritium [Srinivasan, Current Science, 143 (1991); Chene 90; Rout 91; Storms, Fusion Technology, 17, 680 (1990); also Notoya 94A, 94B; Will 93, 94; Claytor 96A, 96B], sparse neutrons [Gozzi, J. Fusion Energy, 9, 241 (1990); Menlove, J. Fusion Energy, 9, 495 (1990); also Gozzi 90A, 90B; Ogawa 96; Perfetti 89; Wada 89; Bittner 91; Celani 97], other particles [Karabut 92; Chambers 91; Taniguchi 89; Iwamura 94], helium-4 [Bush, J. Electro. Chem., 304, 271 (1991); also Miles 94C, Miles 91,

93B, 94C, 96B; Bush 96], some radiation [Szpak 96B; Celani (90)], and possibly heavy elements [Matsumoto, Fusion Technology, 20, 323 (1991), Karabut (92)) Matsumoto 92; also Ohmori 96A, 96B; Savvatimova 94, 95; Mizuno 96A, 96B, 96C; Miles 96C, 97A; Miley 96]}.

The reports of these products support the incontrovertibility of this new nuclear technology. The Examiner's own witness, Dr. Will demonstrated tritium production ["Reproducible tritium generation in electrochemical cells employing palladium cathodes with high deuterium loading, J. Electroanal. Chem 360 (1993) 161-176; confer also Will 1994]. Swartz (96B) describes several other reports of tritium production. Thus, based upon the above-discussed inadequacies of the art cited by the examiner, and most importantly based upon the growing abundance of "positive" more-recent literature there is evidence of fusion in a material using isotopic fuel.

Where is the Examiner's Response to literature supporting the measured products of the cold fusion reaction(s) including excess heat, but other released particles have also been reported {including tritium [Srinivasan, Current Science, 143 (1991); Storms, Fusion Technology, 17, 680 (1990)], sparse neutrons [Gozzi, J. Fusion Energy, 9, 241 (1990); Menlove, J. Fusion Energy, 9, 495 (1990)], helium-4 [Bush, J. Electro. Chem., 304, 271 (1991)], and possibly heavy elements [Matsumoto, Fusion Technology, 20, 323 (1991)]}? Where is the Examiner's Response to Swartz(92), Swartz(94A), Swartz (97A) and Swartz(99), but also Mallove pp246-248, Storms(90,93); Arata(90); Celani(90); Pons(90); Bockris(90); Szpak(91B); McKubre(91); Will(91,93,94), Miles(94C,91,93B,94C); and McKubre, SRI ["Summary During ICCF-7", Infinite Energy, 4, 20, pp.34-35, (1998)]? Where is the Examiner's Response to (Hagelstein 93B), Storms (94C); Huggins 94, Savvatimova (94), McKubre (95), Itoh (95), Biberian (95), and Nobel (95), Kamimura (96), Lonchampt (6), Li (96A), Mizuno (96B), Kamimura (96); Miles (96C), Oriani (96), Claytor (96A), Celani (96B), Swartz 96B, Swartz 96A, Fox 96A, and Rothwell (96)? The vast number of papers in this field corroborates both the "existence" and the "utility" of these teachings.

Where is the Examiner's Response to the several hundred individuals who attend the conferences on the subject [ICCF-2, ICCF-3, ICCF-4, ICCF-5, ICCF-6, ICCF-7, ICCF-8, ICCF-9, and other meetings] who disagree with the Office's opinion.

Where is the Examiner's Response to any or all of the 9 volumes of the *Cold Fusion Times*? Where is the Examiner's Response to *Fusion Technology*, *Journal Of New Energy*, *Cold Fusion Times*, *Technology Review*, *Journal Of Electroanalytical Chemistry*, and *Journal Of Physical Chemistry*, etc., which publish on cold fusion despite the Office's opinion. The vast number of papers in this field corroborates both the "existence" and the "utility" of these teachings.

Where is the Examiner's Response to Aspden (UK GB 2,231,195B), Czirr (5,231,290), Westphal (5,215,631), Patterson (5,036,031) which have the words "cold fusion" within them?

Where is the Examiner's Response to Fox 96A, 96B, Verner 96, Rothwell 95, Oriani 95, and writings by Dr. Storms ["Excerpts from Dr. Storms' Letter to Congressman Dick Swett and (U.S.) Congressional Hearing", and Storms, "Cold Fusion Heats Up", *Technology Review* (1994) and also see Storms 91, 95 and 96B], and Dr. Charles Beaudette [Beaudette Paxton Award paper (1994). *Cold Fusion Times* volume 1, number 4, page 5 (1994); *The Torch*, volume 66, pages 3-7 (1993)]. Despite the myopia of the Office's new argument, the cold fusion technology has been discussed by, and shown to be important to, some members of U.S. Congress [Mallove, "Cold Fusion and Alternative Fusion Are the High Points of U.S. Congressional Fusion Energy Hearing" *Cold Fusion Times*, volume 1, issue 2, page 1-2, 4, 8 (1993); Mallove, "Report of an Important Meeting with the U.S. Congress", *Cold Fusion Times*, volume 1, issue 3, page 1, 4, 8 (1993); Storms, "A very "unscientific" and personal take on other cold fusion effects", *Cold Fusion*, volume 1, issue 1, page 43 (1994)], Schwinger ["Cold Fusion: Does It Have A Future - Look to the rising sun", *Cold Fusion*, volume 1, issue 1, pages 14-17 (1994)], Rothwell ["Cold Fusion quietly takes off in Japan", *Cold Fusion*, volume 1, issue 1, pages 24-31 (1994)] and Rothwell ["Cold Fusion and History", *Cold Fusion Times*, volume 1, issue 2, page 6, (1993)]. Other examples showing the "pulse" of the field include Mallove, "Why 'Cold Fusion'?" *Cold Fusion*, volume 1, issue 1, pages 4-6 (1994), and Rothwell, "Cold Fusion quietly takes off in Japan", *Cold Fusion*, volume 1, issue 1, pages 24-31 (1994))?

The Applicant requests an answer to the question: How many publications does it take in prestigious peer-reviewed journals before the Office (or Examiner) accepts the clear, substantiated, evidence that a field of science and technology exists?

Where is the Examiner's Response to Applicant's citing where the Examiner has been, presumably inadvertantly or unintentionally, in conflict with the law? For example, pursuant to *In re Oetiker*, Applicant hereby did respond in full to each of the Examiner's points with discussion in detail. For example, pursuant to *In re Morris*, Applicant did respond with information including those skilled-in-the-art. Furthermore, pursuant to *In re Grey*, Applicant presented other evidence including those of operability and utility, including in said Declarations [thereby also consistent with *In re Porter*].

POINT 7: Technical Issues Support The Applicant

Some of the Office's cited references are only theoretical criticisms. Furthermore, most of the Office's cited references involve poorly loaded, or otherwise inactive, samples as discussed by the Applicant in the previous communication. The Applicant has provided positive papers.

To the comment made by the Examiner's reference which incorrectly claims that no one in the field publishes negative results, this is false. The Applicant has published negative reports, including looking for metachronous particle emissions in experiments at MIT [M Swartz, "Possible Deuterium Production from Light Water Excess Enthalpy Experiments Using Nickel Cathodes", *Journal of New Energy*, 1, 3, 68-80 (1996)].

POINT 8: Factual Issues Support The Applicant

The Examiner has made so many errors of fact and law that they are briefly summarized below in alphabetical order. Several of these errors were avoidable if the Examiner had fully and completely read the Applicant's previous responses.

SOME ERRORS OF FACT BY THE EXAMINER

== Error By Examiner Regarding Alibagli

The Office egregious and odiously states to poison the record -- despite submitted un rebutted evidence from the Applicant,

"It is noted in this respect that there has essentially been a continuing stream of publications showing that virtually none of the scientific community consider the alleged positive results of cold fusion experiments as being confirmed. ... In this respect, Applicant's attention is directed to ... Albagli et al ..."

THE TRUTH - The Examiner Cites Fraud Again

The Examiner cites Alibagli which contains PROVEN FRAUD as the Examiner ignores the US Navy, the US Air Force, NASA, RLE, the American Nuclear Society. It is consistent with Federal requirements of truth and accuracy that the Examiner disingenuously again relies upon and give authority to papers which now have been shown to have major errors or have proven fraud. Several additional peer-reviewed publications (including Fusion Technology and J. Electroanal. Chem) have exposed many significant flaws in the cited so-called "negative" papers upon which the Office leans on. For example, independent analyses (Noninski, cf. also Mallove) indicate that the experiments of the Massachusetts Institute of Technology [MIT] and Lewis -- despite reported apparently "negative result" may have actually demonstrated excess heat in their experiments which utilized heavy water. Based upon his research, Noninski (93; 91B) has dismissed the references of Lewis, Miskelly, and those which cite early 1989 experiments at MIT's Plasma Fusion Center upon which the Examiner has so staunchly relied.

"Although much discussion was (and is still) devoted to whether ("cold fusion") is connected with any known nuclear reactions, the latter being widely questioned, there is no doubt that the general interest in the problem was provoked by the claim of the possibility of producing excess energy, i.e., energy surmounting the energy break-even value. Unlike the clearly negative indications so far in terms of known nuclear processes taking place, however, careful analysis reveals that the claims in the principal negative papers published so far with respect to the existence of excess energy are in disagreement with the raw experimental data whenever such is presented in those papers. This is very surprising indeed in view of the wide publicity these negative results have been given. An example of an improper analysis of their own experimental data by the authors is Ref. 1 (MIT Plasma Fusion Center Paper, Alibagli et alia), which we have already discussed. (ref. 2) Other examples of inappropriate method and improper interpretation of their own experimental data are (Lewis et alia) and (Miskelly et alia)."

[V. Noninski, Fusion Technology, vol. 23, pages 474-476 (1993).; "Notes On Two Papers Claiming No Evidence For The Existence Of Excess Energy During The Electrolysis Of 0.1 M LiOD /D2O With Palladium Cathodes"]

7/339,976. With all due respect, if the Examiner wishes to continue to quote altered data [Albagli] but continues to fail to cite, or explain the basis for ignoring, Applicant's evidence which was timely and repeatedly submitted [including in the Federal Appellate case regarding 457 in the Appendix therein at A203-204, A244, A278-A279, A3553-355, A367-A370, A391, and especially A368], then this communication shall demonstrate that personal notice was given of a Constitutional, statute, and civil rights violation, as well as Office communications containing knowingly disingenuous false statements known to be false *a priori* [Niehot'f v. Sahagian, 103 A.2d 211 (Me. 1954)] and is therefore a breach of duty [Rannard v. Lockheed Aircraft Corp., 26 Cal. 2d 149 (1945), 18 U.S.C. §1503]. The Office communication is thus in error [People v. Pierce, 66 Cal. 2d 53 (1967); U.S. v. Price, 86 S. Ct. 1152, 1157, footnote 7; Sawtelle v. Farrell, 70 F.3d 1381, 1387 (1st Cir. 1995); Leasco Data Processing Equip. Corp. v. Maxwell, 468 F.2d 1326 (2d Cir. 1972); Pizarro v. Hotels Concorde Int'l, C.A., 907 F.2d 1256 (1st Cir. 1990); Peckham v. Continental Casualty Ins. Co., 895 F.2d 830, 836 (1st Cir. 1990); Donatelli v. National Hockey League, 893 F.2 459, 465 (1st Cir. 1990)].

== Errors By Examiner Regarding Bosch, Balke, Rogers

The Office states,

"Applicant's attention is directed to ... Bosch et al, Balke et al, Fleming et al, Rogers. ... These references provide further clear evidence that no excess heat is generated in such "cold fusion" systems nor is there any evidence of nuclear reactions taking place."

THE TRUTH - The Examiner Cites Technical Incorrect Papers

The Examiner cites Bosch, who unseriously claims to be the "Bavarian Bubble Bottle Team"), who purportedly attempting to repeat the initial F+P experiment. Because the sensitivity of their system is 300 milliwatts (page 165), it is unlikely they would have been able to detect the expected signal with their calorimetry which was circa 65 milliwatts excess heat. Bosch measured neutrons which are not produced (discussed elsewhere).

The cited arts have loadings which are insufficient. The Bosch cathode had a loading of less than 0.67, and that did not include correction for other depositions of other materials into or upon the cathode (page 172). This loading is now known to be too low (Swartz 97A) The "negative" results may be, in part, due to inadequate loading (Swartz 07/339,976), and/or the failure to monitor said loading of isotopic fuel (Swartz, (07/371,937**), and/or to activate the loaded quantity of isotopic fuel in various ways (Swartz 07/339,976, Swartz 07/371,937** and Swartz 07/760,970**), and/or to drive at the right location (Swartz SN 08/406,457 [filed March 20, 1995]. As taught in Swartz

07/339,976, palladium must fill with, and thus physically absorb within it, enough deuterium to obtain the desired reactions.

The cited arts are not relevant. The Examiner cites Balke, which teaches a less relevant gas system which loaded palladium and titanium. The other references use neutrons.

The Examiner cites Rogers, which is a theoretical paper because some of the conclusions in Rogers are not inconsistent with cold fusion. For example, on page 484, Rogers discusses that gamma emission from the excited helium state is not allowed. This is generally correct except at very elevated temperatures (like hot fusion), and Swartz (97A) and Swartz 96B discusses how this actually enables the desired reactions.

== Errors By Examiner Regarding Blue

The Examiner inaccurately states:

"In Ref. X1, Dick Blue stated on the issue of confirmation of cold fusion results that 'four years into this business, it seems we are still counting the simple replications of Excess heat' and failing to note that none of the replications match in any significant additional details."

In Refs. V2 and W2, Dick Blue lays out why there are problems with the "cold fusion" process."

THE TRUTH - Missing Page Alert

The Applicant thanks the Examiner for the citation from Dr. Dick Blue, who the Applicant has cited in his peer-reviewed published papers, where the Applicant corrected some of his (and Jones') incorrect statements (*infra*). The Examiner cites a newsgroup posting by Dr. Blue from February 11, 1994. The Examiner quotes a posting from Dr. Blue of which the Examiner has removed the first page. This is apparent because when this exhibit was downloaded, there were five pages, but for some reason the Examiner has removed the cover page. Nonetheless, looking at the exhibit, it is a reply to the Applicant from Dr. Blue dated February 11, 1994. In it, Dr. Blue discusses the work of others including Yamaguchi, and Miles. It is not relevant to the present invention except as it relates to F+P.

In it, Dr. Dr. Blue discusses cold fusion with Dr. Swartz. At the end of the posting, Dr. Blue -who is probably the most serious critic of cold fusion of the Internet- states,
"I want to thank Mitchell for his frank responses."

The Examiner also presents postings from Dr. Blue on May 7, 1993 in which he discusses the products of cold fusion with the Applicant, Dr. Mitchell Swartz. Therein, Dr. Swartz takes the time to answer Dr. Blue and the Examiner is referred to the Applicant's answer on page 2 therein,

"also, the present information is that cold fusion ... has been confirmed in several configurations, has been tested by several respectable calorimetries, and is more complicated than first thought."

The Applicant did not share the technology of the present application (or the others) with Dr. Blue, but instead did refer him to the peer-reviewed published articles, and did correct Dr. Blue's scientific errors such as will now be discussed.

== Error By Blue And Examiner Regarding Special Relativity

The Office inaccurately states,

"In a 1992 article in Surface and Coating Technology, Jones take the position that the claims of excess heat, tritium and helium production due to nuclear reactions are "dubious to say the least" (note page 288) because there is no evidence of commensurate nuclear products. Note the reference to $E=mc^2$ on page 286."

THE TRUTH - THE EXAMINER Errs Regarding Special Relativity

In the Examiner's final citation of Dr. Blue, dated November 19, 1994, Dr. Blue discusses, albeit incorrectly, the Schrodinger equation. On page 2, Dr. Blue discusses the "the time scale for the transition process". Dr. Blue got it wrong, and the Applicant, Dr. Swartz, did fully completely, and accurately correct him in the peer-reviewed journal of the American nuclear society [Phusons in Nuclear Reactions in Solids", Fusion Technology, 31, 228-236 (1997)].

Dr. Blue appears to have incorrectly derived the Schrodinger equation using "energy" rather than "the uncertainty in the energy". As the Examiner knows, the Schrodinger equation involves the relationship between either the uncertainties of mass and momentum or the uncertainties energy and time. In the case being discussed, the latter was invoked by Dr. Blue. As the Examiner knows, the product of the uncertainties is on the order of the number, called \hbar . Dr. Blue's error directly results from his use of the energy (E) rather than the uncertainty of energy (ΔE). This common error of those without adequate scientific education is discussed in significant detail in the Applicant's published paper "Phusons in Nuclear Reactions in Solids", Fusion Technology, 31, 228-236 (1997). Attention is directed to the section discussing special relativity therein where this matter is definitively and correctly discussed (after peer-review).

== Error By Examiner Regarding Broad, Dagani, etc.

The Office improperly offers "yellowed" newspaper and book accounts which are of questionable and low accuracy, and ignores Applicant's submitted evidence which was peer-reviewed by the American Nuclear Society. The Office disingenuously states,

"The Dagani article in the 1/14/91 issue of C & EN states that the "cold fusion" claims are taken seriously by virtually none of the scientific community and that research at Utah's National Cold Fusion Institute (NCFI) as well as research elsewhere, have failed to establish the existence of cold fusion."

The Broad article in the 3/17/91 issue of the New York Times indicates some of the data relied on by Fleischmann and Pons as showing evidence of fusion was faulty."

THE TRUTH - - The Examiner Errs Regarding Followup Efforts

The applicant discussed Dagani and the other matters once again improperly mentioned by the Examiner [who ignored the Applicant's previous responses which were in the previous communication to the Examiner on pages 83 through 84. It is unfortunate that the Examiner must have overlooked this matter inadvertently or unintentionally.

The Examiner has not explained why he unduly relies upon non peer-reviewed periodicals and books which do not discuss Applicant's invention as he ignores the submitted evidence of the Applicant regarding operability or utility.

The Examiner has not explained why he has ignored, and did not discuss, so many of Applicant's arguments in this matter. First, perhaps to promote sales of the newspapers, the Office quotes "headline" events without any substantial data being presented. And it is important to note that some "headlines" are simply wrong.

Second, such "headlines", as opposed to the peer-reviewed articles cited by the Applicant in Fusion Technology, are not fair representative appraisals of new technologies.

Third, this is another case where the Office again takes selected, functionally "old" and out-of-date, biased excerpts to attempt to prove its "point". However, the very newspapers which the Examiner has cited now publish updates which herald that there is increasing acceptance of, interest in, and growth of this field [cf. Freedman (Science 4/24/92), Chandler (Boston Globe 4/17/92)]. As a result, it is reported that scientists are "quite convinced that there is a source of heat" [Prof. Philip Morrison as reported in Chandler] and are "not concerned about the lack of neutrons (expected in a conventional) fusion reaction" [Prof. Louis Smullin as reported in Freedman]. Dagani (1992) now reports that growing numbers of the scientific community do take seriously the "excess heat". See also Chandler, Freedman, Bishop.

Fourth, the Office cites old (~1991) articles, but there are many periodicals -- more recent -- which do support this field including the Wall Street Journal (Bishop (92); Bishop (93), Bishop (96)), New York Times (November 17, 1992, Pollack, and especially Clarke 1997). There are many periodicals which do support this field including the Wall Street Journal (Bishop (92); Bishop (93), Bishop (96)), New York Times (November 17, 1992, Pollack, and especially Clarke 1997). The Examiner should note that the Applicant has now supplemented these with even more references.

The Examiner has not explained why he unduly relies upon irrelevant papers which are totally theoretical. Some of these "negative theoretical" citations calculate, using what may be incorrect or false assumptions and approximations, that fusion of isotopic fuel in a material, ie. cold fusion, can not "work" (eg. Ohashi, Cribier, Chapline). The applicant respectfully asks the examiner to reconsider, because in actual fact such calculations were historically presented "proving" that heavier-than-air ships (ie. airplanes) "cannot fly". As another example: such calculations only created a virtual "drag" to the innovation of ideas, and their development and implementation, involving airships - which later evolved to include jets and spacecraft.

"Professor Goddard ... does not know the relation of action to reaction ... he only seems to lack the knowledge ladled out daily in our high schools"

[New York Times, January 13, 1920]

"... after a few more flashes in the pan, we shall hear very little more of Edison or his electric lamp. Every claim he makes has been tested and proved impracticable."

[New York Times, January 16, 1880]

=== Error By Examiner Regarding Flemming

The Examiner cites Fleming and other papers where the loading times are too short. For example, Fleming some were half a day, the longest was 5 days. Without the codepositional techniques taught in the original specification and claims of the above-entitled application, the times are weeks to achieve the desired reactions. Furthermore, the loadings were insufficient. Fleming only had a loading estimated at 0.75 (page 521). This loading is now known to be too low (Swartz 97A).

== Errors By Examiner Regarding Jones

The Office states,

"This apparent transformation of Jones from a 'cold fusion believer' to 'skeptical' is discussed by Dagani in the June 5, 1995 issue of C & EN."

THE TRUTH - - The Examiner Errs And Cites Less Than Relevant Work

The Applicant thanks the Examiner for the citation from Dr. Jones which is not relevant and is immaterial. It is interesting to watch Jones take both sides (see Taubes), and also publish the "positive" results in this field (Jones 89, Jones 90, Menlove and Jones et alia in Menlove 90B).

First, the Examiner should admit that Jones' positive work has been cited in issued US Patents including Czirr 5,231,290.

Second, the Examiner must accept that Jones now does again report neutron emission from these systems, as was presented this year at the APS meeting and then reported on in the Cold Fusion Times (Winter 2003 issue). The fact remain that Jones' experiment work now supports cold fusion.

The Office states,

"Jones et al in J. Phys. Chem, vol. 99, (1995) set forth reasons why the alleged obtainment of excess heat in cold fusion systems, can not be relied on as valid."

THE TRUTH - - The Examiner Errs On Jones' Errors Already Discussed

The Examiner cites Jones' claims, but the Examiner egregiously ignores that the Applicant has already submitted contradicting un rebutted evidence and discussed that evidence including the errors in Jones explained with solid substantive response [A205,A251-A252,A291-292,A322; also A65,A70] including Jones' significant errors (Miles 93A, Miles 94A, 96A, Cravens 96, Tinsley 97). Dr. Miles, as just one example, discusses in great and sufficient detail said errors contained in the Jones papers in his 20 May 1998 to Mr. Dagani, Senior Editor, Chemical and Engineering News

"Enclosed is a reprint of my recently published reply to Jones-Hansen [J. Phys. Chem. B. 102, 3642 (1998)]. It was a long and difficult battle for me to have the opportunity to reply to the vicious attack of my work by the Jones-Hansen paper [J. Phys. Chem., 99, 6966 (1995)]. In my opinion, their paper contained many distortions and errors concerning my publications rather than the reasonable scientific dialogue that is so badly needed for this field.. ... Although critics like S.E. Jones and others have made it nearly impossible to obtain government funding for cold fusion, this research continues in many laboratories around the world. Unlike Jones and his 1989 report of cold fusion neutrons, I find no reason to retract any of my cold fusion claims. The recombination of deuterium and oxygen gases does not explain my excess heat measurements, and atmospheric contaminations do not explain my correlations between the excess power measured and the helium-4 produced in the experiments."

[Dr. Melvin H. Miles NAWCWPNS Fellow, DEPARTMENT OF THE NAVY
NAVAL AIR WARFARE CENTER WEAPONS DIVISION]

UT In addition, it is important to note that in addition to said errors, Jones has other significant errors as well which are not discussed in these cited references. For example, in Jones (95), the discussions of heat rate, thermoneutral potential, and input power are incorrect, and furthermore are not applicable to the present application and invention, as discussed in Swartz (96E) and Swartz (95, 97B).

== Errors By Examiner Regarding Japan

The Examiner inaccurately states:

"If cold fusion is real, demonstrable, or reproducible it would mean more to the Japanese than any other industrialized nation.

.... the Japanese have terminated their three-year multi-million dollar effort to demonstrate and commercialize cold fusion."

THE TRUTH - - The Examiner Errs Because Japan Has Always Had CF R&D

This disingenuous new argument by the Office, that *"the Japanese have terminated their three-year multi-million dollar effort to demonstrate and commercialize cold fusion"* is wrong for several reasons. In fact, Japan pursued cold fusion before World War II (*Cold Fusion Times*, enclosed herein), and its efforts continue (*supra*).

First, Japan is made of many individuals and institutions, many of which continue cold fusion studies, and who disagree with the hearsay Office claim, as they diligently continue to publish, including [and each of which prove the Examiner and his cited art incorrect]: Arapi, Alban, Faculty of Engineering, Iwate University, Japan, Experimental Observation of New Element Production in the Deuteride and/or Hydride Palladium Electrodes Exposed to the Low Energy DC Glow-Discharge, *Cold Fusion Times*, Volume 10, Number 1, 2003; Arata, Achievement of Solid-State Plasma Fusion, *Cold Fusion Times* Fall 1997; Asami, T. Senjuh, T. Uehara, M. Sumi, H. Kamimura, S. Miyashita and K. Matsui R&D Center for New Hydrogen Energy, The Institute of Applied Energy 14-2, Nishishinbashi 1-chome, Minato-ku, Tokyo 105, Japan, Material Behavior Of Highly Deuterated Palladium, The Seventh International Conference On Cold Fusion. 1998; Iwamura, Yasuhiro, Takehiko Itoh, Mitsuru Sakano and Satoshi Sakai, Observation Of Low Energy Nuclear Reactions Induced By D2 Gas Permeation Through Pd Complexes, The Ninth International Conference on Cold Fusion. 2002. Beijing, China: Tsinghua University.; Iwamura, Yasuhiro, Mitsuru Sakano And Takehiko Itoh, Advanced Technology Research Center, Mitsubishi Heavy Industries Ltd., 1-8-1, Sachiura, Kanazawa-ku, Yokohama 236-8515, Japan, Elemental Analysis of Pd Complexes: Effects of D2 Gas, *Jpn. J. Appl. Phys.* Vol. 41 (2002) pp. 4642-4650, Part 1, No. 7A, July 2002; Iwamura, Takehiko Itoh, Nobuaki Gotoh, Mitsuru Sakano, Ichiro Toyoda And Hiroshi Sakata, Detection Of Anomalous Elements, X-Ray And Excess Heat Induced By Continuous Diffusion Of Deuterium Through Multi-Layer Cathode (Pd/CaO/Pd), The Seventh International Conference on Cold Fusion. 1998. Vancouver, Canada.; ENECO, Inc., Salt Lake

City, UT: pp. 167, J. Kasagi, H. Yuki, T. Itoh, N. Kasajima, T. Ohtsuki and A. G. Lipson, Anomalous Enhanced D(d,p)T Reaction In Pd And PdO Observed At Very Low Bombarding Energies, Seventh International Conference On Cold Fusion. 1998. Vancouver, Canada; Eneco, Inc., Salt Lake City, Matsumoto, Taka-Aki, Hokkaido Univ, Japan, Generating Carbon Tubes And Films From Lead And Cadmium Wires During Underwater Spark Discharges, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000), Mizuno, Tadahiko, Tadayoshi Ohmori 1, Kazuhisa Azumi, Tadashi Akimoto And Akito Takahashi, Confirmation Of Heat Generation And Anomalous Element Caused; Mizuno, Tadahiko Tadayoshi Ohmori, Tadashi Akimoto, Hokkaido Univ, Japan, Akito Takahashi, Osaka Univ, Japan, Neutronics, Heat and Products Induced by Plasma Electrolysis, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000), Mizuno, Tadahiko, Experimental Confirmation of the Nuclear Reaction at Low Energy Caused by Electrolysis in the Electrolyte, Proceedings for the Symposium on Advanced Research in Energy Technology 2000, Hokkaido University, March 15, 16 and 17, 2000, pp. 95-106., Mizuno, Anomalous Isotopic Distribution after electrolysis, Cold Fusion Times Fall 1996, Mizuno, Tadahiko, Nuclear Transmutation: The Reality of Cold Fusion, Department of Nuclear Engineering Hokkaido National University, Japan, Mizuno, Tadahiko, Tadayoshi Ohmori, Tadashi Akimoto and Akito Takahashi, Production of Heat during Plasma Electrolysis in Liquid, Jpn. J. Appl. Phys. Vol.39 (2000), Mizuno, Tadashi Akimoto, Tadayoshi Ohmori 1, Akito Takahashi, Relation Between Neutron Evolution And Deuterium Permeation With A Palladium Electrode, The Ninth International Conference on Cold Fusion. 2002. Beijing, China: Tsinghua University., Takahashi, Akito Masayuki Ohta, Osaka Univ, Japan, Tadahiko Mizuno, Hokkaido Univ, Japan, Radiation-Less Fission Products by Selective Channel Low-Energy Photofission, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000).

Second, the Examiner's disingenuous statement is indelibly rebutted by said Japanese efforts including Mitsubishi's recent paper on cold fusion in China at the 9th International Cold Fusion meeting on 4/02 (*supra*).

Third, groups in Japan are simply not relevant to the present application.

Fourth, if the cited groups had followed the present original specification they would have succeeded.

The Examiner, trying to undermine US security and the US Constitution is directed to additional CF confirmations which have been made by the Japanese [Mizuno (December 1993); Yamaguchi 90].

"The cold fusion phenomena were tested with use of proton conductor solid electrolyte plates maintained at 300~400 deg C. An anomalous level of excess heat evolution of the order of 100 watt cm^{-2} was observed during absorption/desorption cycles of deuterium-containing hydrogen gas under application of an alternate electric field. **** Samples were made from a mixture of SrCO_3 , CeO_2 , Y_2O_3 and Nb_2O_3 powders. **** The heat generation from the proton conductor in the experiment of deuterium-containing hydrogen gas was estimated to be approximately 50 watt ($\sim 100 \text{ watt cm}^{-2}$) over 20 hrs, or $\sim 3.6 \text{ MJ}$ in total. The input power given to the sample was +18 V, ± 40 (micro) A, or 7.2×10^{-4} watt. Accordingly, the output-to-input power ratio was estimated to be as large as 7×10^4 ."

["Anomalous Heat Evolution from SrCeO_3 -Type Proton Conductors during Absorption/Desorption of Deuterium in Alternate Electric Field"; Tadahiko Mizuno, Michio Enyo, Tadashi Akimoto and Kazuhisa Azumi Hokkaido Univ., Sapporo, Japan (ICCF-4, December 1993)]

Despite the incorrect statements by the Examiner, similar confirmations of cold fusion and continued efforts have been made by the Chinese [Jin (December 1993); Li (95, 96A, 96B, 97), Jin (93, 94)].

"The experimental studies of YBCO-D system indicated that YBCO high temperature super-conductor (HTSC) was shown to have a similar effect on deuterium absorbability and anomalous nuclear effect like palladium(1). We found that $\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_{7-d}$ could absorb deuterium at normal temperature and forms $\text{D}_x\text{Y}_1\text{Ba}_2\text{Cu}_3\text{O}_{7-d}$. We also found that the deuterated YBCO could produce high energy charged particles far larger than background. The influence of the absorbed deuterium on the characteristic of YBCO HTSC and the mechanism of the anomalous nuclear effect are not clear and needed to be further studied."

["Deuterium Absorbability And Anomalous Nuclear Effect Of YBCO High Temperature Super-Conductor"; Jin Shang-Xian, Zhan Fu-Xiang And Liu Yu-Zhen, En Beijing, PRC (ICCF-4, December 1993)]

Also inconsistent with the Office's opinion and attempt to hurt the United States and its citizens, are Russia's reports also confirming cold fusion. For example, Kucherov (1993) has confirmed the cold fusion phenomena in the gas glow discharge system.

"The results of four years of experimental work on glow discharge in deuterium with cathodes made of palladium and other materials are presented. About 500 experiments were made. ****. Neutron spectra showed neutron energies up to 17MeV with anomalous shift to high energies (five orders) relative to d-d reaction. .. Gamma-spectrometry showed low level radioactive isotopes formation. Together with half - life time measurements it allowed to identify some of the isotopes, such as Rh and Sr isotopes. Most of the lines (~ 100) are still unidentified. Non-background gamma-lines sometimes can be seen for few days. Most of the gamma-lines appear in lower than 300KeV region. X-ray films

outside the chamber with lead screens show some beam-like spots with energy 100-200 KeV. Charged particles registration with SSB and CR-39 detectors showed good correlation of the results obtained by these methods. Maximal observed fluxes of charged particles were $\sim 10^6 \text{ S-1}$. ***** X-ray film with lead screens showed X-ray fluxes up to 10gs.] with soft ($< 1 \text{ KeV}$) and hard (10-30KeV) components. Sometimes characteristic X-rays of palladium can be seen with Ge-Li detector."

["Calorimetric and Nuclear Products Measurements at Glow Discharge in Deuterium"; Yan Kucherov, Alexander Karabut, Irina Savvatimova Scientific industrial Association "Luch", Podolsk, Moscow Region, Russian Federation (1993)]

Thus, there is growing evidence that the Office's opinion that cold fusion "does not exist" is incorrect, but is only made to usurp the United States Constitution, Congressional directive, law, custom, and Applicant's rights. Said evidence includes reports of the progress of cold fusion reveal a real scientific field in Japan, India, Russia, England and France ["Cold Fusion in Japan", Rothwell, *Cold Fusion Times*, v. 1, issue 3, page 1, 7, 9, (1993) and "Cold Fusion Impact - Global Response:", Fox, *Cold Fusion Times*, vol. 1, issue 2, p. 2, 5 (1993), Mallove, "Cold Fusion", May 1994 issue, vol 1 number 1]. The Examiner should consider "Why there?" The answer is this. Research has flourished mainly in those countries (Lonchampt 96) where patents issue.

As stated in the un rebutted Declaration of Mr. Fox,

"Few other countries have denied cold fusion inventors the rights to the fruits of their ingenuity. The most telling evidence is the fact that scores of patents on cold fusion have issued in other countries (over one-third of all patents issued have been to Japanese inventors and assignees). By contrast almost no patents on cold nuclear fusion have been granted by the U.S. Patent Office"

[Declaration of Hal Fox]

Therefore, the Applicant respectfully requests that the Examiner respond honestly to Applicant's submitted evidence about Japan, and then finally, tardively, admit the Office is incorrect. Work on cold fusion began in Japan before World War II and continues to this day. The US is now 14 years behind other countries because of the US Patent Office denies allowing valid patents to issue, thereby systematically ignoring both Constitutional and Congressional directive.

== Error By Examiner Regarding Harwell

This latest new argument by the Examiner involves citations of the 1989 Harwell experiment. However, was there no evidence of any excess heat generated in any of the Harwell cells? Harwell had flawed analysis, and as the Examiner knows, but ignores and fails to comment upon, was shown by the U.S. Navy, upon close analysis, to have had positive results in Cell 3. Melich and Hansen (Melich 93) have reported that:

"In Harwell's D₂O Cell 3 there are more than ten time intervals where an unexplained power source or energy storage mechanism may be operating.

***Harwell Cells 1,2,3 and 4 were wired in series to a constant current source.

*** Throughout these anomalous increases in temperature in Cell 3, Cell 4 behaves "normally", i.e., it suffers no unexplained pulses of energy. Our initial estimate of the power associated with these anomalous temperature increases is 100-200 mW."

[Melich, M.E., Hansen, W.N., "Some Lessons from 3 Years of Electrochemical Calorimetry", in ICCF-3 Frontiers of Cold Fusion", Academy Press (1993), underlined for emphasis] Thus, Harwell's cell 3 supports the characterization of "positive results".

== Errors By Examiner Regarding Huizenga

The Office states,

"Applicant's attention is directed to Huizenga"

THE TRUTH - - The Examiner Relies On An Old Inaccurate Book

This citation of Dr. Huizenga's book is a new argument by the Office. It is a flawed new argument for several reasons ranging from relevance, to timeliness, to accuracy, and to the role of theory, and reliance upon fraud, upon which the book begins and ends.

First, the book has NOTHING to do with the present invention.

Second, the book is not up-to-date with respect to cold fusion, nor is it accurate. Most importantly, this book focuses on a few mistakes of a few individuals from 1989, and does not reflect either the science or engineering of the field in general today, or the present invention specifically.

Third, Huizenga's book and its unsubstantiated and inaccurate statements and claims have been criticized by many including Mallove (94; see also his Declarations). Dr. Huizenga would pass off the entire field as "pathological science", but given that he fails to read the literature, or respond to the issues in his book, his entire premise must be examined. Dr. Eugene Mallove, historian and scientist, has made some compelling comments about this phrase used against those in the field of cold fusion

"Pathological science" became the common insult, as few noticed that pathological skepticism about a new phenomenon was the real problem. Contrary to the media's perception, cold fusion never died and was certainly never disproved; it simply went underground as groups of courageous scientists in over a dozen countries mounted a concerted effort to understand and reproduce the mysterious phenomenon. Thanks to their hard work, it has survived."

[Mallove, "Cold Fusion", May 1994 issue, vol. 1, number 1]

Other discussion of the errors in Huizenga was made with solid substantive response [A206,A243,A275-276,A279,A294-295 in the Federal case and elsewhere] although it is systematically ignored by the Examiner to deprive the Applicant of his Constitutional and civil rights. Where is Huizenga's or the Office's response?

Fourth, attention is drawn to the simple fact that no "Epilogue" by one writer can refute the copious -- and growing -- data which exists for cold fusion. Many attendees at the ICCF-4 meeting in Maui (including the Applicant) watched the elderly tired Dr. Huizenga sleep on a couch in the hotel during said Conference; even as three (3) simultaneous meetings were going on at that time. Dr. Huizenga appeared tired and worn, woke up later, after missing scores of meetings, and reported that there was "nothing new". This is preposterous and inaccurate, but Dr. Huizenga is entitled to his inaccurate opinion and his sleep.

Fifth, Huizenga's book relies on theories against cold fusion because of the unusual (compared with hot fusion) branching ratio. Some of these "negative theoretical" citations by the examiner calculate, using what may be incorrect or false assumptions and approximations, that fusion of isotopic fuel in a material, i.e. cold fusion, can not "work" (e.g. Ohashi, Cribier, Chapline). There exist other theoretical papers which may explain the observed cold fusion phenomena (e.g. Hagelstein 90, 91, 1993A, 94; Takahashi (91), Swartz 1992, 94A, 96B, 97A, 97B; McNally 89; Hora 93; Johnson 94; Mills 94; Mills 95; Li 95; Kim 90, 94A, 94B, 95, 96; Matsumoto 89; Chubb 90, 91, 94A, 94B; Szpak 91; Tajima (90); Schneider 89; Rice 90, Zhu 90, and Bush 91A). These theories involve loading, material destruction, and nuclear reactions including tunneling, screening, and many other issues. These papers reflect solid research and support the existence of the field but are ignored by the Office. The applicant respectfully asks the Board to reconsider, because in actual fact such calculations were historically presented "proving" that heavier-than-air ships (i.e. airplanes) "cannot fly". Such calculations only created a virtual "drag" to the innovation of ideas, and their development and implementation, involving said airships - which later evolved to include jet planes and spacecraft.

"Professor Goddard ... does not know the relation of action to reaction ... he only seems to lack the knowledge ladled out daily in our high schools"

[New York Times, January 13, 1920]

The Office states,

"note the following comments by Huizenga (IV) under the heading Reproducibility"

"Note particularly pages 1 25, 222, 223, of Huizenga (I) which refer to the lack of reproducibility of the alleged "positive" cold fusion results."

THE TRUTH - Reproducibility Is A Relative Issue

The Office brings up a new argument about the purported non-"reproducibility" of these phenomena, as a "reason" for rejection. However, there are several errors with this logic and new argument.

First, the Examiner's and his cited art's arguments are clouded by the two different meanings of the word(s) "(not) reproducible". In the parlance of the Office, when referring to "cold fusion", the word(s) "(not) reproducible" are a euphemism for "wrong". When used more generally, however, these words can even apply to scientific (and medical) fields which actually do engender respect and/or validity, and where "reproducible" only refers to the number of samples in a cohort developing the desired effect. The restriction that the Office creates using the word "reproducible" in the present case would obviously create unreasonable hurdles for inventors in such fields as cancer treatment, meteorology, or the sciences of earthquakes, lightning, sunspots, or solar storms.

Second, despite the erroneous logic of the office, radiation therapy accounts for the cure of more than 60% of adults afflicted with solid tumors composed of malignant disease, and obtunds the pain in 80% (or more) of patients treated palliatively, there is almost always a clinical effectiveness. Yet it is not possible to know in advance which patients are going to be cured nor is it necessarily reproducible in any single patient. Thus there is clinical proof and utility, despite the lack of reproducibility in any single individual or cohort of patients. Thus, the claim that "reproducibility" must necessarily be absolute for there to be "utility" is also simply not true. Would the Examiner withhold curative treatment of a patient --of their own family member-- because such therapy is not "reproducible"? In summary, if the Office throws out cold fusion patent applications because there is not 100% reproducibility for each experiment, then probably all of the pharmaceutical and biomedical device patents should, for similar reasons, be voided *nunc pro tunc*.

== Error By Examiner Regarding Merriman

The Office states,

"Applicant's attention is directed to ... Merriman et al"

The applicant thanks the Examiner for providing a copy of the website of Dr. Barry Merriman. Dr. Merriman has made several comments about Dr. Swartz. One of those comments is in the last page of the Examiner's cited art.

The Examiner cites a paper by Dr. Barry Merriman, entitled "An Attempted Replication of the CETI Cold Fusion Experiment". In the paper, Merriman attempts to reproduce an experiment of someone other than the Applicant, and of a system other than the present application or any of the other applications of the Applicant. Therefore, Merriman is not relevant.

Most importantly, it is presumed that the reason that the Office cited this paper is because Dr. Merriman cites the Applicant, Dr. Swartz, on page 17, of 17. On that page, although Dr. Merriman is critical of many people in their efforts stating that they are "neutral -- to wildly optimistic", but of the Applicant of the above-entitled invention, Dr. Merriman states,

"Dr. Mitchell Swartz is cold fusion times is unabashedly pro -- CF, but serious, scientifically oriented online magazine."

With that complement by the offices witness supplementing the unrebutted Declarations and the copious unrebutted peer-reviewed publications and other Exhibits, the Applicant now hopes the Examiner will reconsider and issue this patent.

== Error By Examiner Regarding Miller And Bass

The Examiner inaccurately states:

"... attention is directed to the MEMO (dated 10/9/97) from Bennett Miller to Dr. Robert W. Bass. ... the conclusion of the Miller Memo is that there is still no concrete evidence of excess heat ... Abide by the process."

THE TRUTH - The Examiner Errs By Citing Someone Opposed To Solar-Cells And Alternative Energy

In new argument by the Examiner in the above-entitled application, the Examiner cites Dr. Miller extensively (pages 19-21). There are several problems with this citation.

First, Miller does not discuss this invention or ANY of Applicant's work (published and/or unpublished). It is therefore not relevant. Miller is admittedly inconclusive. Miller states that "it can be argued that the tests were inconclusive for a number of reasons".

Second, Miller is technically inaccurate about cold fusion situation in Japan. Miller confuses the Toyoda/IMRA effort (with F+P in Sophia Antipolis) with the IAE-NHE Laboratory (Shin Sapporo) which was under the aegis of MITI/NEDO and was officially "closed" after 3.5 years of an intended 3 year effort.

In fact, Japan pursued cold fusion before World War II (*Cold Fusion Times*, enclosed herein), and its efforts continue (*supra*).

Third, Miller suggests the use of peer-review. As discussed in the Verner Declaration, the Applicant has done just that,

"I have witnessed Dr. Swartz operate his equipment in front of visitors to the laboratory including Professors Louis Smullin and Keith Johnson from MIT and others."

Applicant has submitted more than 40 peer-reviewed papers and that is abiding by the process, as the Examiner surely would agree. What could be more compliant with Miller's suggestions than that?

Fourth, discussion of errors in Miller, was previously made with solid substantive response [e.g. in the Federal Appendix A316-317, A321]. Where is the Examiner's response?

Fifth, it appears that Miller was also against solar-cell technology in the '70s and therefore has a history of opposing alternative energy sources (like solar cells), and his opinion must be further discounted accordingly.

Sixth, the Applicant includes a letter which he wrote to Dr. Miller about his cited, inaccurate, report. Dr. Miller never responded to that to this date.

== Errors By Examiner Regarding Morrison

The Office states,

"In this same vein, note the negative comments in Morrison regarding the claims by Fleischmann and Pons, of excess enthalpy in their cold fusion cells which were made to boil."

THE TRUTH - The Examiner Errs By Citing Possible Hate Crime

There are several problems with the Office's reliance upon the late Douglas Morrison. First, the criticism now cited by the Office in new argument has been addressed elsewhere (and shown to be wrong). Specifically, the *Cold Fusion Times* (pages 1, 2, 6, 8, 10-11) volume 1, issue 3 (1993) included an update by Drs. Fleischmann and Pons who have responded in great detail to said "criticism" of their work ["Response to Critique of Physics Letters A Paper", *Cold Fusion Times* (pages 1,2, 6, 8, 10-11) volume 1, issue 3 (1993)].

Second, discussion of the errors in Morrison was previously made by the Applicant with solid substantive response [A252-253, A292-A293, A323 in the Federal case] and conveniently ignored by the Examiner.

Third, Morrison, previously a serious worker in hot fusion community (CERN), deviated and then widely lectured on subjects such as unidentified flying objects (UFOs) and the Loch Ness monster. He tried to relate them to the more serious serious well-credentialled scientists in the field of cold fusion. To do so, Douglas Morrison preached his own elitist dictum based upon his "view" of science being "superior" in certain locations. Morrison implied that "good" science can only be done by a handful of "good"

research institutes which are all located only in Northern Europe and the Northeastern United States. Morrison stated that other people located in Southern Europe, Asia, and Southern U.S. --and who perform research there-- are inferior scientists, who can only produce at best marginal, "bad," inconsequential, science or as he puts it "pathological" science. As proof, the following excerpt is from the Office's reference, taken from the video transcript cited by the Office.

"A disturbing pattern emerged in cold fusion experiments. Labs at high prestige universities generally got negative results. Elsewhere results were often positive." [World map is displayed with this voice-over, then Mr. Morrison speaks on camera]: 'I was absolutely astonished when I took northern Europe -- northwestern Europe. All the results were, no, no, no, no -- they couldn't find it. And when I took southern Europe it was all yes, yes, yes. And when I took eastern Europe it was all yes, yes, yes. The United States divided into two parts. If you took the major laboratories and what I call the greater region of The New York Times -- where it was read very much -- it was no, no, no. If you took the remainder of the United States -- the southern part of the United States, it was yes, yes, yes.... This rather horrified me.' "

[Morrison, 1991, cited by the Office]

This is called the Morrison "Regionalization of Results" theory [1990 "Review of Cold Fusion"]. His detractors point out that this is tantamount to "Aryan Science Numerology" because by whatever name for this scheme, this Aryan/Regionalization theory has nothing to do with either science or the above-entitled application, but involves elements of "hate crime". Like most elitists, Morrison did not hide his opinions. By attacking scientists' results based upon where their laboratory was located makes Morrison's -- and the Office's {since they cite him} -- prejudices quite clear. It is wrong for the Office to again endorse this, and thereby align the United States of America with such salient discrimination, hate crime, and prejudice.

Finally, the Applicant includes a letter which he once wrote to Dr. Morrison about his inaccurate report. Dr. Morrison never answered with any response or rebuttal, probably because of his inaccuracies.

The Office states,

"Later in the article it was written 'Simply put, in its current state, it could provide boiling water for a cup of tea.' Time delay to this working mode! - Zero years."

THE TRUTH - The Examiner Errs By Ignoring Data

Although this may be true for the art cited by Morrison, it is NOT true for the Applicant. Attached to this Response are experimental runs for Applicant's invention using this system (heavy water, codeposition, palladium, palladium) giving rise to sufficient

For temperatures such as Morrison requested. The temperature curves show that the water was sufficient temperature to burn a person, and that it is probably too hot for a "cup of tea". The facts speak for themselves, and the Examiner is respectfully again requested to deal with them honestly, rather than attempting to usurp Constitutional and civil rights of the Applicant.

== Errors By Examiner Regarding Murray

The Examiner inaccurately states:

In Ref. U2, Rich Murray raised questions about the Applicant's paper, I: Consistency of the Biphasic Nature of Excess Enthalpy in Solid State Anomalous Phenomena With the Quasi-1-Dimensional Loading Into a Material." Murray noted that for evaluation, details such as exact dimensions and locations of components of the calorimeter are needed. Murray also expressed concern about error ranges being so large."

THE TRUTH - The Examiner Errs By Relying On Netchatter

The Examiner cites a posting by Mr. Richard Murray, dated March 21, 1998. In the netpost, Mr. Murray briefly and superficially discusses the paper which the Applicant published in the peer-reviewed journal of the American Nuclear Society without evidence that he actually read the paper.

First, the Examiner's attention is directed to fact that Mr. Murray is concerned about the "flawed references" in said paper. In fact, in his very critical attack on cold fusion, Mr. Murray states,

"Swartz has arrived at the scene like the enterprise, almost the only survivor."

Second, Mr. Murray's comments, however, are shallow, not very scientific, a mixed with terms like "*Borg attack*", "*Halloween*", and "*the shadow knows*". In the prism of this background, Mr. Murray's comments are those of "armchair net chatter".

Third, most importantly, the Examiner should know that the Applicant Dr. Swartz has responded to Mr. Murray and a copy of that is appended. In said response, Applicant informed Mr. Murray of the following.

"Also, in addition to references 1-7, additional nickel excess heat has been confirmed by NASA and by two separate labs at MIT where the investigators have not published their work."

**** - Attention is directed to the fact that Applicant's publications in peer-reviewed journals are NOT press releases or web-chatter unlike those on whom the Examiner relies and cites.

For the Examiner's interest, those MIT laboratories are Lincoln and Draper Laboratories, the identity of which those that conducted said work asked the Applicant to not post the locations on the Internet.

Mr. Murray did not read the paper, and the biggest clue was his misunderstanding of the electrochemical setup, so the Applicant corrected him,

"Actually, the iron and aluminum were in alternate electrical paths in the same electrolyte. This was stated in the paper. Therefore, these were correct controls. BTW, we had tried them separately as well. We know nickel works, and iron does not. We know that platinum if exposed to nickel as the anode, can develop nickel cathodically plated out upon its surface which can apparently create some of the reaction, leading to platinum, in my experience, once used and exposed to such nickel deposition probably not being a good control unless the surface is cleaned of the plated nickel. This was also stated in the paper."

As the Examiner knows, it was also taught in the patent application filed years earlier.

Mr. Murray was not knowledgeable about thermal stratification which generates in continuum media (including possible Bernard instability), so the Applicant corrected him.

"Despite, Mr. Murray's implication, we have measured with redundant systems, and at many points within the electrolytic cells. Furthermore, we have examined various thermometric systems to get the thermometry right before the calorimetry. This was stated in the paper. Therefore this internal thermal stratification is NOT an issue. Furthermore we measured the excess (or otherwise for the other materials) heat in a multiring system, and the subsequent rings also corrected for that issue. This was also stated in the paper."

"If Mr. Murray, or more likely a student or research of the field, would like to read further in the literature and apply some numbers, he/she might try issues of greater quantitative significance, such as discussed in Swartz, M., 1996, "Relative Impact of Thermal Stratification of the Air

"Surrounding a Calorimeter", Journal of New Energy, 2, 219-221 (1996). For example, the development of hydrogen over the cathode during electrolysis increases the thermal conductivity making the measured excess heat potentially a "lower limit" because the calorimetric thermal leakage increases with the generation of H₂ or D₂ in the pericathodic volume above the electrode."

As the Examiner knows, this too was also taught in the patent application filed years earlier.

The Examiner should know that the dean of American electrochemistry, Dr. Bockris, has also responded to another of Mr. Murray's inaccurate and unscientific diatribes attacking Dr. Miley, the past Editor of *Fusion Technology*.

== Error By Examiner Regarding Neutrons

The Office states,

"what are the specific conditions under which said neutronpenic levels can occur?"

THE TRUTH - Neutrons Are Not Relevant To The Present Invention

The Examiner is referred to the Phuson paper by the Applicant [*"Phusons in Nuclear Reactions in Solids"*, *Fusion Technology*, 31, 228-236 (1997)]. Fusion of isotopic fuel in a material does not usually produce significant numbers of neutrons external to said material. Therefore, many of the so-called putative "negative" results do not negate anything at all because the absence of neutrons is not the evidence of the absence of fusion of isotopic fuels in a material [eg. Williams, Kreysa, Ziegler, Hajdas, Faller, Alber, and Lewis].

Furthermore, the actual generation of neutrons although unlikely is discussed in the Examiner's cited work. These positive results include Shani, who monitored stimulated neutron radiation from deuterated materials after said deuterated materials were neutron-irradiated. Also Jones. In fact there have been many reports of low level neutrons from these systems (Gozzi 92; Wolf 90; Arata (90); Menlove 90A, 90B, Takahashi 91, Scott (90); De Nino (89); Yamaguchi (90); and Mallove (see *Fire from Ice*).

== Error By Examiner Regarding NOVA

The Office inaccurately states,

"Applicant's attention is directed to NOVA. ... In this respect, the television show on NOVA entitled, "Confusion in a Jar", indicated that in these cold fusion experiments, it is fairly easy to get quick results which could be "interpreted" as providing evidence of "cold fusion" but that in very carefully run experiments which were rechecked, etc., such as by using several different methods and/or detectors to attempt to detect the same presumed experimental results, the end result was negative."

THE TRUTH - The Examiner Errs By Ignoring That Videos Were Submitted Several Times Rebutting NOVA

The Examiner cites the "ancient" NOVA tape. The applicant discussed the videos in the previous communication to the Examiner. Where are the Examiner's substantive responses to the previous submitted response by the Applicant? The Examiner has ignored that the Office cited the NOVA video before repeatedly, and each time the Applicant responded with three (3) videos [CBC (1993), CBC (1994); BBC (1994)] on May 26, 1997 and November 8, 1997. The Examiner should examine the three (3) videos which Applicant sent [CBC (1993), CBC (1994); BBC (1994)] to the file folder, of which this application is a Divisional. Said videos rebut the Examiner. The Applicant's videos rebut the Office's reliance and dependence upon an older less accurate video (A10-A13,A18; A197,A240,A323-325,A327-330,A339 in the previously submitted Exhibts rendered with Applicant's response). Unlike the older NOVA video, other more recent documentaries -- already supplied to the Office by the Appellant -- made by reputable production groups such as the Canadian Broadcasting Company [CBC (1993), CBC (1994)] and the British

~~The Broadcasting Company [BBC (1994)] have meticulously researched and reported the truth surrounding cold fusion.~~ Scores of individuals in the scientific community have contributed to the latter documentaries, and by doing so declare the Office's flawed opinion on these matters to be wrong. Those references which are cited by the Examiner are not only stale, but should be handicapped by the Examiner because many are in error, and simply did not get it right. In contrast, the references supplied by the Applicant show the present state-of-the-art, including publications by those actually working in the state-of-the-art.

Given the extensive "positive" published results which confirm the generation of products (including excess enthalpy) using isotopic fuel loaded into a material, the applicant therefore respectfully requests that the Examiner reconsider the rejection.

== Error By Examiner Regarding Rousseau

The Examiner cites Rousseau. This new argument is very flawed. First, as before, the Office again takes selected and older and biased excerpts to attempt to prove its "point". Second, the Office confuses purported "pathological science" with now-documented "pathological skepticism". Third, the authors whom the Office cites do not describe, or respond to, or show, the invention of the present above-entitled application.

Fourth, Dagani admits that [Dagani (1992)] growing numbers of the scientific community do take seriously the "excess heat" of cold fusion [cf. Freedman (Science 4/24/92), Chandler (Boston Globe 4/17/92), Arthur C. Clarke in Discover Magazine 5/1997]. As a result, it has been reported that scientists are "quite convinced that there is a source of heat" [e.g. Prof. Philip Morrison as reported in Chandler] and are "not concerned about the lack of neutrons (expected in a conventional) fusion reaction" [e.g. Prof. Louis Smullin as reported in Freedman].

Fifth, the United States Patent Office itself has issued patents in this field, and they have been discussed by the very same authors whom the Office cites.

"A bottle no bigger than a man's fist is creating an unusual stir among power generation engineers. The bottle is filled with ordinary water and microscopic palladium coated beads. When a little electric current trickles through the bottle, several hundred times as much power starts coming out in the form of heat - that is, if one cares to believe the instruments attached to the bottle. ... Yet supporters say something is going on inside the little heat producing bottle. As with the Utah apparatus, it's claimed that the bottle produces an excess of power as it electrolyzes, or breaks down, water molecules into hydrogen and oxygen atoms. But unlike the controversial and unpredictable Utah experiments, The Patterson cell can be turned on and off seemingly at will. Several working devices built by Dr. Patterson have been made available to two teams. "This is the first time what we have a system that seems to work every time," says a nuclear chemist who consults to utilities. The cell's reliability, which would allow scientists to manipulate it, "gives us our first chance to see if this [phenomenon] involves a nuclear reaction," he explains. Moreover, the U.S. Patent and

Trademark Office, which has flatly said that cold fusion, like perpetual motion, is impossible and unpatentable, has issued a patent on the gadget."

[Jerry E. Bishop, *The Wall Street Journal*,

January 29, 1996, underline added for emphasis]

Errors By Examiner Regarding Silveria and Myers

The Examiner cites Silveria and Myers. However, they did not achieve their loading by the method described in the present original specification, and therefore does not apply. Specifically, Silveria (90) used a diamond anvil to attempt to load palladium with deuterons. Although high pressure was obtained, the reaction was monitored by neutron detectors, and neutrons are not the proper signal for these types of reactions, even if they were achieved by the quite different system of Silveria (90). Also, Silveria may have seen a slight increase, as it is difficult to state since there were insufficient initial background levels reported (Fig 3, page 9145, Silveria (90)). Furthermore, the papers states: "The neutron detector had deviations of 0.3 counts/h from the average of 2.1 counts/h, which we did not consider to be significant (bottom column 1, page 9145, Silveria (90)).

Myers et alia (90) used a 10,000 volt ion implantation cryogenic (41 to 81 degrees Kelvin) technique to load palladium with deuterons. Although high pressure was obtained, the these were quite inhomogeneous (see figure 5, page 266, Myers (90)). The reaction was monitored for 15 hours by charged particle detectors. Such detectors may not be the proper signal for these types of reactions (Mallove, also vide supra), even if they were achieved by the quite different system of Myers (90). Also, Myers did see a very slight output consistent with some possible fusion reaction (see figure 1, page 264, Myers (90)) which created 300 counts per channel of tritons. Furthermore, Myers only did this for 15 hours, which is too short (confer Swartz 97E).

Silveria and Myers demonstrates the field is real, and that many would have benefited by the granting of the patent described in the original specification and claims of the above-entitled application.

== Error By Examiner Regarding Taylor

The Office states,

"In the Taylor et al article (co-authored by Jones), which was submitted to the Fourth International Conf. On Cold Fusion (held Dec. 1993), it is stated in regard to the detection of neutrons from their cold fusion experiments, "The results do not provide compelling evidence of neutron production" (note particularly abstract and pages 6, 7, 9, 10)."

THE TRUTH - The Examiner Errs Because Taylor And Jones Describe Neutron Emission

Actually, the Taylor article itself describes a possible evidence of neutron emission. There was a 2-sigma deviation in the sample that demonstrated tritium. That "coincidence" is acknowledged in the article, and some of the authors admit that they should have repeated that several more times. The Examiner should read the cited articles, and also confer with the Jones neutron paragraph above.

== Errors By Examiner Regarding Taubes

The Office states,

"The article by Taubes on pages 299-304 of the 6/15/90 issue of Science, explains why the alleged detection of tritium at Texas A & M cannot be relied on as evidence of "cold fusion" actually taking place."

THE TRUTH -

The Examiner cites Taubes. This new argument and reference to Taubes is both wrong, irrelevant, immaterial, and egregious. Taubes focuses on a few mistakes of a few individuals from 1989, and does not reflect either the science or engineering of the field in general today, or the present invention in specific. Taubes (like Huizenga) is a career-"negativist" to this field who makes a living off of his book. However, Taubes is a science reporter and not a scientist. Nor has he been sworn in or proven by the Office to be an expert in these matters as the Applicant has done with the Declarants to date.

First, not only did no alleged tampering take place, but the generation of detected tritium has actually been confirmed elsewhere including in US national laboratories. Furthermore, the dynamics of the tritium which did appear, could probably not have been "spiked" as discussed in Mr. Taubes' unsubstantiated allegations crafted as innuendo to which the Office refers. Both Taubes, and now the Office, owe apologies to all individuals whom they have impugned in this made up story.

Second, the Office's reliance on such a purported dubious incident has **NOTHING TO DO WITH** the original specification of the above-entitled application.

Third, Taubes' book has many frankly silly and stupid errors including claims that researchers in this field do not measure electric current, or baseline levels. The Figures in

the original specification of the above-entitled application and the other of the Applicant's inventions and peer-reviewed publications show that this is not true for the present invention.

Fourth, Taubes' book has been severely -- and correctly -- criticized by Miles (92A), also Miles (92B), and Hoffman (94). Also see Mallove.

== Error By Examiner Regarding Ward

The Examiner inaccurately states:

"In Ref. W1, an individual noted that the Applicant first made a statement that Cold fusion is real" and then later on stated that "a single experiment demonstrating excess heat is insufficient to convince, but only shows a vector for further diligent work and study. The individual then stated, "to convince me of your (i.e., Applicant's) statement, that cold fusion is real, you need to show me at least one paper reporting clear, convincing, reproduceable, unmistakable heat production."

THE TRUTH - The Examiner Errs Vy Citing Netchatter Rather Than Scientists Skilled-In-The-Art

The Examiner cites a net posting by Bill Ward on March 7, 1998. In it, Bill Ward indicates that he's interested in cold fusion but that he was disappointed that the Applicant, Dr. Swartz, did not take time from his busy schedule, then as visiting scientist at MIT and from his patients, and from his laboratory efforts, to "spoon-feed" Mr. Ward and explain other people's published papers to him. In fact, in the Examiner's cited art, attention is directed to Mr. Cockeram who defended the Applicant, stated, "I really don't think it is Dr. Swartz's job to pick apart a paper for you".

SOME ERRORS OF LAW DISCUSSED BY THE EXAMINER

== Error By Examiner Regarding Dash

The Examiner states:

"The Board decision in Ex parte Dash, 27-USPO 2d 1481 is considered pertinent here."

THE TRUTH - The Examiner Errs Because Significant Evidence Was Submitted

The Examiner has a new argument regarding the Board of Patent Appeals and Interferences in the Dash decision. The Examiner claims the Dash decision says cold fusion does not exist. Then the examiner asserts -- without proving it -- that the Dash case is the same as the present instant case. However, there are several misstatements and logical errors in this new argument.

First, the decision states [Ex parte Dash No.92-3536 (Decided November 24, 1992 Released May 11, 1993)]: "applicants failed to produce any evidence to overcome examiner's position. " [U.S. PTO Board of Patent Appeals & Interferences; Ex parte Dash No. 92-3536 November 24, 1992] That is not the case here. More than three hundred references, the supplied Declarations, and the Applicant's published reports in peer-reviewed journals, overcome the Examiner's position, not just because of the quantity of references, but because of the quality. The Declarations alone overcome the Examiner's position if the Examiner actually obeyed the law and the Office's rules.

Second, the present invention is neither described by, nor referred to, within Dash, or said Appeal Decision. Dash is simply a different case despite the Office's new argument. As such, the use of the Dash decision is improper.

== Error By Examiner Regarding In re Chilowsky,

The Examiner inaccurately states:

"The present case is considered analogous to that in In re Chilowsky ... wherein the court held the disclosure to be insufficient. In the present case (despite Applicant's arguments to the contrary), the examiner has shown that various necessary parameters have not been provided and, the examiner has provided evidence that the artisan does not know the requisite parameters of an operative cold fusion system, nor how to make and use an operative cold fusion system."

THE TRUTH - The Examiner Errs By Ignoring The Original Specification

The Examiner is disingenuous. The amount of evidence required for proof of utility depends on the facts of each individual case [In re Gazave, 54 CCPA 1524, 379 F.2d 973, 154 USPQ 92 (1967); In re Chilowsky, 43 CCPA 775, 229 F.2d 457, 108 USPQ 321 (1956); In re Jolles, U.S.C.P.A., 1980, 628 F.2d 1322, 206 USPQ 885]. Applicant has provided the Office with those parameters, and previously in a case before the US Supreme Court, the Office was caught being dishonest about voltage, temperature, and other parameters. A copy of that is included with this response so that the Examiner and the Court if necessary can see that this disingenuity is systematic. Applicants data and sterling references consisting of scores of articles taken from peer-reviewed and other

scientific and educational journals, all in rebuttal to the Office's misstatements. Applicant's references have been listed on Forms PTO-1449 with the appropriate Petition pursuant to 37 CFR 1.97(d)(1)(ii), and certificate pursuant to 37CFR 1.97(d)(1)(e), appended. Said references, like the submitted un rebutted Declarations are relevant and overcome the opinions of Examiner because of the reasons stated in said Appeal and Reply Briefs.

== Error By Examiner Regarding Italy - Court

The Examiner inaccurately states:

"It is also noted that there has apparently been a court decision on cold fusion in Italy"

THE TRUTH - The Examiner Errs And Cites A Libel Case

The cited case is irrelevant, immaterial, and was a libel case and did not involve the case for cold fusion, nor the case for the present invention.

SUMMARY

It is commonsense that the individuals in the scientific community who actually attend the Conferences in cold fusion are the same ones who evaluate its products and publications. This community as defined by the rules of the Office and by commonsense -- if it will be applied in this case -- verify the existence of the field. Publications show that growing numbers of the scientific community consider the positive results of cold fusion as being confirmed. Where is the Examiner's comment on any one which proves the statements of the Examiner are disingenuous. Said publications continue to this day, including (and each of which show the Office's opinion is flawed):

Arapi, Alban, Faculty Of Engineering, Iwate University, Japan, Experimental Observation Of New Element Production In The Deuteride And/Or Hydride Palladium Electrodes Exposed To The Low Energy Dc Glow-Discharge, Cold Fusion Times, Volume 10, Number 1, 2003

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Where is the Examiner's response technically?

Are all these people lying as like the Examiner and Office purport? N

o. In fact, such widespread replications of cold fusion, and other developments in the field, have more evidentiary value than the few flawed "negative" reports cited by the Examiner. The facts dispute the erroneous rejection of all pending claims made by the Examiner pursuant to 35 U.S.C. 112, first paragraph, based upon the Examiner's incorrect -- and unfounded given the supplied Declarations -- opinion that the "environment" in which the above-entitled invention operates "does not exist". In contrast to the few "nay-sayers" the Office cites, and in contrast to the "older" books, papers, and newspapers to which the Office refers in its new argument, stand the facts and the Declarations which demonstrate the existence of these reactions, and even their generation of nuclear fusion products (such as helium-4), and the operability of the present invention. The positive results, the Declarations, and the peer-reviewed published literature have much more evidentiary value than the few "negative" less credible -- recycled and older -- reports cited by the Examiner. Therefore, the subject matter sought to be patented as defined by Claims 1, 10, 11, 21, 22, and 24-30 (all pending claims) have operability, and resides in a field which does exist and have utility.

THE OFFICE OF THE COMPTROLLER OF THE COURT
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WASHINGTON, D.C. 20540

These peer-reviewed publications, Exhibits and Declarations prove Applicant was correct on the filing date of the application [In re Hogan, 559 F.2d 595, 60S, 194 USPQ 527, 537 (CCPA 1977)]. They prove that the Applicant taught the subject matter defined by each of the rejected Claims including how his apparatus and method works, set forth the best mode contemplated, distinctly pointed out and claimed the subject matter which constitutes the invention, wrote an adequate enabling disclosure, and thus complied and conformed with 35U.S.C. §112, first paragraph, of the Patent Act. This was done so that an artisan, or those skilled in the art, could practice it without undue experimentation [In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988), citing with approval Ex parte Forman, 230 USPQ 546, 547 (Bd. Pat. App. & Int. 1986)]. Applicant has now demonstrated that his invention as claimed was, and is, adequately described to one skilled-in-the-art. Said Declarations are sufficient in their factual content with respect to the significant evidence, and prove that the Examiner is in clear error. By submitting said peer-reviewed publications, showing the Applicant is correct, and said Declarations containing relevant facts by probative witnesses, the Applicant has now undertaken the full burden coming forward with his evidence as required [In re Oetiker, 977 F.2d at 1445, 24 USPQ2d at 1444].

Ignored (along with the evidence) yet again in the Examiner's Communication are the following standards of review. These were cited previously and no reason has been given by the Examiner for his deviation from said standards of review.

The Examiner ignores In re Prater, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969)] which requires the Examiner to refer to the claimed invention as the focus of its Office communication, but it did not when drifting toward criticism of "FP".

The Examiner ignores In re Morris which requires that the Examiner must respond to what Applicant meant, but he did not.

The Examiner ignores In re Hogan [559 F.2d 595, 60S, 194 USPQ 527, 537 (CCPA 1977)] which discusses that enablement must be judged on the original specification and claims, but in this Communication it was not.

The Examiner ignores In re Fouche [439 F.2d 1237, 1243, 169 USPQ 429, 434, (CCPA 1971) and In re Zletz [893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989)] which state that an invention (in structure, operation and composition) is defined by the claims and the original specification.

The Examiner ignores *In re Gazave*, 54 CCPA 1524, 379 F.2d 973, 154 USPQ 92 (1967)] and *In re Chilowsky* [43 CCPA 775, 229 F.2d 457, 108 USPQ 321 (1956)] which require consideration of the material which Applicant supplied and cited.

The Examiner ignores *In re Oetiker*, 977 F.2d at 1445, 24 USPQ2d at 1444 which requires the Examiner to substantively respond with a *prima facie* case of unpatentability. However, after the submission of Swartz, 1998, Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Society, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85 and Swartz(97), other peer-review papers, and the Declarations, the burden shifts back to the Office and can only be discharged by the Examiner "presenting evidence or reasons why persons skilled-in-the-art would not recognize in the disclosure a description of the invention defined by the claims" [Wertheim, 541 F.2d at 263, 191 USPQ at 97]. Applicant asks that this be done with specificity, substantivity, and with explicit reference, and in detail with full findings of fact.

The Examiner ignores *In re Brana* and *In re Eltgroth*, 419 F.2d 918, 164 USPQ 221 (CCPA 1970) which demand that the Examiner must establish a reason to doubt an invention's asserted utility, and the loading of an isotopic fuel into a material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material and means to extract product using magnetic field inhomogeneity, based differential magnetic susceptibilities [cf. Swartz and Straus Declarations] is not 'incredible' or 'unbelievable' like the Examiner appears to purport. This invention is quite believable.

The Examiner ignores *In re Vaeck* [947 F.2d 488, 495-96, 10 USPQ2d 1438, 1444 (Fed. Cir. 1991)] which states that an enablement rejection under section 112, ¶1 is only appropriate where the written description fails to teach those skilled-in-the-art, like the Declarants, to make and use the invention.

The Examiner ignores Rule 132 which requires Applicant's solid, substantial, and timely, evidence submitted against the Examiner's rejections be considered because "(p)atentability is determined on the totality of the record, by a preponderance of the evidence with due consideration to persuasiveness of argument." [Id. at 1445, 24 USPQ2d at 1444]. Applicant has published his inventions, proving that this invention was correctly taught in the original specification and claims, on the filing date of the application.

The Examiner has ignored controlling authorities including Clause 8 of Section 8, Article I, by improperly eliminating an entire field involving energy and United States security.

The Examiner has ignored controlling authorities including Article VI, by interfering laws passed by Congress [Diamond v. Chakrabarty; 447 U.S. 303, 309] including that patentable statutory subject matter spans "anything under the sun that is made by man" [S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H. R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952)].

The Examiner has ignored controlling authorities including Article I, Section 2, by ignoring that Applicant is entitled to the privileges and immunities of citizens in the other states. Specifically, the Examiner ignores that the Office, Europe and Japan have allowed selected other patents in the very same field not allowed here [Czirr(5,231,290), Westphal(5,215,631), Ahern(5,411,654), Patterson(5,036,031), (5,318,675), (5,372,688), (5,036,031); Aspden, UK-GB 2,231,195B]. This is a dual-tiered system. No such demand was made of these other patents. There appear to be two different standards of review. Therefore, the Examiner has ignored controlling authorities including the reasoning of the Supreme Court in United States v. Nixon (1974) that all are "equal under the law". Hence, the Examiner has ignored controlling authorities including the 14th Amendment, requiring an impartial tribunal [28 U.S. Code Section 144, Mayberry v. Penna., 91 S.8.; Bloom v. Illinois, 88 Ct. 499 S.Ct. 1477; Duncan v. Louisiana, 88 S.Ct.1444] and equal protection. In the light of the previously unrebutted Declarations [hereby again submitted] there appear to be violations of the 14th Amendment's "equal protection" clause [Frontiero v. Richardson, 93 S.Ct. 1736, 411 U.S. 677; Weiss v. Weiss, 436 N.Y.S. 2d. 862, 52 N.Y. 2d. 170 (1981)] with serious implications [Gass v. Lopez, 95 S. Ct. 729; Wood v. Strickland, 95 S Ct 9S2; U.S. v. Price, 86 S Ct 1152, 1157, Footnote 7; Griffin v. Breckenridge, 91 S Ct 179D; Gamez v. Toledo, 42 U.S.C.§1983, and Bivens v. Six Unknown Named Agents of Fed. Bureau of Narcotics].

In summary, and most importantly, Examiner should have considered, and commented upon substantively, the submitted evidence including:

#1) Declarations from scientists of ordinary skill-in-the-art, who considered the specification and stated that the written description was sufficient. Applicant is acknowledged by those involved in the state-of-the-art (Lin 97, Fox 97, Fox 96A, Rothwell 96). Said evidence shows that the Office's position is in error.

#2) The published peer-reviewed scientific articles [including Swartz, 1998, Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Society, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85 and Swartz(92, 94A, 97A, 97C)].

By ignoring such evidence consisting of Declarations, and peer-reviewed publications, the Examiner also ignores *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) which indicates that #1 or #2 are sufficient to demonstrate that the specification provides an adequately written description of the subject matter, including how to operate the invention, and claimed the invention so that an artisan, or those skilled-in-the-art, could practice it without undue experimentation. Either #1 or #2 prove that enablement, utility, and validation. Together, #1 and #2 have been submitted and Applicant submits that these together corroborate enablement of the present invention both *de facto* and *de jure*.

Therefore, in accordance with the foregoing arguments that Appellant has conformed with the requirements of sections 112 of the Patent Act, and reversal of the rejection of Claims 1, 10, 11, 21, 22, and 24-30 is respectfully requested, as required by the statute (35 USC 112).

ARGUMENT - 35 USC §112 SECOND PARAGRAPH

For each rejection under 35 U.S.C. 112, second paragraph, the Appellant hereby does fully and completely specify the errors in the rejection and how the claims particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The appealed claims do not stand or fall together. Claims 1, 10, and 21 are separately patentable and do not stand or fall together because they are materially distinct with respect to 35 USC 112 second paragraph. Claims 1, 10, and 21 are separately patentable because they are not unduly multiplied, have separate limitations, and are required because the invention described by the original specification of the above-entitled application is very complex.

PURPORTED INDEFINITENESS

The Office inaccurately states,

"Claims 1, 5-8, 10-14, and 21-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention."

Appellant respectfully notes that this was discussed in the previous Communication with the Examiner on pages 14 through 16 and also pages 91 through 95 where it was discussed through the prism of those skilled-in-the-art. Where is the Examiner's response?

Notwithstanding the above, it is disingenuous for the Examiner to claim there is indefiniteness. "... (I)ndefiniteness in claim language is of semantic origin" [In re Hammack, 427 F.2d 1384 n.5, 166 USPQ 209 n.5 (CCPA 1970)] because indefiniteness is the opposite of definiteness. Definiteness is a characteristic of a patent claim in which claim language makes the scope of the claim clear to a person skilled in the art to which the invention pertains [MPEP 2173, MPEP 2173.02, MPEP 2173.05(a)]. Pursuant, to MPEP 2173, Applicant claimed with particularity, and did point out and distinctly claim the invention. Applicant's claims are therefore definite because the claims are precise, clear, correct, and unambiguous to a person skilled-in-the-art and, therefore, there was definiteness. The specification did conclude claims particularly pointing out and distinctly claiming the subject matter. Applicant has fully complied with the definiteness requirement of the second paragraph of 35 U.S.C. §112. The original specification and claim adequately presented the claimed invention so that an artisan, or those skilled in the art, could practice it without undue experimentation [In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed.Cir.1988)].

Definiteness Corroborated By Declarants

The Examiner has not responded to the fact that Definiteness is proven by way of Applicant's previously-submitted expert testimony [Ex parte Gray, 10 USPQ2d 1922, 1928 (Bd. Pat. App. & Inter. 1989)], including Declarations and Amicus Curiae Briefs. The simple proof is that there has never been a problem for the Examiner in this regard, or with the Declarants who are skilled-in-the-art, or even with the court [In re Swartz 00-1107 and In re Swartz 00-1108]. The Examiner must accurately discuss the invention as it is actually taught in the original specification and claims. The claimed invention should be the focus of the definiteness requirement.

Definiteness Supported By The Claims

The Examiner has not responded to the fact that there is definiteness because the pending claims must be given the broadest reasonable interpretation consistent with the specification [In re Prater, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969), also MPEP Section 2111 - Section 2111.01] and the specification stated the meaning of the terms in the claims [In re Zletz, 893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989)]. Furthermore, there is definiteness because pursuant to 2173.05(a) the meaning of every term used in the claims was apparent from the prior art, cited art, and from the specification and drawings at the time the application was filed. There is definiteness because the claims must each be given the broadest reasonable interpretation consistent with that which one who is skilled-in-the-art would reach [In re Morris]. In this case, it is corroborated by both the Declarations, Amicus Briefs, and peer-reviewed publications.

Definiteness Supported By The Office Rules

The Examiner has not responded to the fact that there is definiteness consistent with Office Rules. The preamble of claim 1 recites the purpose of the process, and the process steps are able to stand alone (MPEP 2111.02). Pursuant to 2173.05(b), the fact that claim language may not have been precise cannot automatically render the claim indefinite under 35 U.S.C. 112, second paragraph [Seattle Box Co., v. Industrial Crating & Packing, Inc., 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984)].

Additional Reason Overcoming The Examiner's Position - Definiteness Supported By Probative Reference

The Examiner has not responded to the fact that the peer-reviewed reference support definiteness [Swartz (1992), Swartz (1994A), Swartz (1994B), Swartz (1997A), Swartz (1997B), Swartz (1998A)] which prove understanding by one skilled in the art [Atmel Corp. v. Information Storage Devices Inc., Fed. Cir., No. 99-1082, 12/28/99].

Additional Reason Overcoming The Examiner's Position - Definiteness Proved By Other Rejections

Applicant notes to the Examiner that there had to have been definiteness because the Examiner could not have made the previous rejections under 35 U.S.C. 102 had the invention truly been without definiteness. Applicant reserves the right to Petition this matter, especially in the light of the un-rebutted ignored Declarations.

In summary, there IS definiteness because acceptability of the claim language depends on whether one of ordinary skill-in-the-art would understand what is claimed, and that is confirmed by the light of the specification, the Declarations, the Amicus Briefs, and the peer-reviewed publications [Ex parte Porter, 25 USPQ2d 1144, 1145 (Bd. Pat. App. & Inter. 1992)]. The Examiner has not responded to the fact that 35 U.S.C. 112, second paragraph requires the Examiner had to provide reasons why the terms in the claims and/or scope of the invention are unclear

"in a positive and constructive way, so that minor problems can be identified and easily corrected, and so that the major effort is expended on more substantive issues."

All definiteness issues are hereby addressed. If there are other issues with Claims 1, 5 through 8, 10 through 14, and 21 through 30, the Examiner was asked to identify with specificity and clear explanation what the rejection is based on [Ex parte Ionescu, 222 USPQ 537,539 (Bd. App. 1984)]. It has not happened.

As the original specification states (page 2, lines 16-21), the subject matter involves a loaded material ...

"... such as palladium which has been electrochemically loaded with deuterium, but it has relevance as well, to hydrogen loading, nuclear fusion, and other reactions in loaded metals such as titanium or palladium filled with deuterium, and to the broader field of metallurgy and engineering in or about metals, including Groups IVb, Vb, and some rare earths."

The original specification states (page 1, lines 7-8) this subject matter is defined as a method

"to control reactions involving isotopic fuels within a material, such as hydrogen within palladium."

In addition, the present invention, is useful, because it will enable any person skilled in the art to make and use the subject matter defined by each of the rejected claims (original specification states (page 3, lines 17-22) so as to

'to control and enhance desired reactions. ... minimize the required quantity of expensive palladium used ... (and) maximize the local quantity of the hydrogen within the palladium.'

Claim 1 claims

"1. In a process for producing a product using a material loaded with an isotopic fuel, a method to control the production of said product which includes in combination:"

As the original specification teaches (page 5, lines 7-9), the best mode contemplated by the inventor of carrying out his invention

"The application of said power source creates an applied electric field intensity which produces cation flow towards the cathode."

As the original specification teaches (page 5, lines 5-12) for those skilled in the art the subject matter defined by each of the rejected claims.

"The power supply and control unit consists of a current source and reactor control device as described in Swartz (1989) ... capable of filling the cathode with deuterium from an aqueous solution, or one enabling deuterated metals loaded by codeposition of deuterium and palladium."

The original specification (page 5, lines 9-12), continues with the teaching of

"There results in the near cathode solution (labelled as 5 in figure 1) a buildup of deuterons, and a low dielectric constant (gas bubble) layer. The bubbles are labelled as number 10 in figure 1. There may be spikes or on the cathode (labelled as 11 in figure 1)."

Claim 1 claims

"applying an electric field to load said isotopic fuel to said material,"

The original specification teaches (page 4, line 26 through page 5, line 3) the best mode contemplated by the inventor of carrying out his invention

"...label 1 represents the metallic cathode, usually palladium in the preferred configuration. ... The label 7 represents the anode which in the preferred embodiment is composed of palladium. The label 6 represents the solution consisting in the preferred embodiment of a gel containing antidesiccant, in combination with LiOD, palladium salts, and heavy water (D2O)."

The original specification teaches (page 5, lines 14-17), the best mode contemplated by the inventor of carrying out his invention using the first applied electric field intensity (referring to the figures).

"Figure 2 is a crossectional drawing (t)his device has two orthogonal applied electric fields. The first (labelled E-field number 1 in the the figure) is that which is applied to charge the palladium with deuterons."

Claim 1 claims

"loading said isotopic fuel into said material,"

The original specification continues (page 5, lines 17-22) with the best mode contemplated by the inventor of carrying out his invention using the second applied electric field intensity.

"The second applied electric field intensity is delivered after full charging has been achieved. In the figure the anode and cathode are labelled as 7 and 1. The electrolyte solution or gel is labelled as 6. The connections for the first electric field are labelled as 81 and 82. The connections for the second electric field are labelled as 85 and 86. The mechanical casing is labelled 20."

Claim 1 claims

"applying a second electric field in a non-parallel direction to the first applied electric fields,"

As the original specification teaches (page 6, lines 7-13), the best mode contemplated by the inventor of carrying out his invention

"Each device is equipped with orthogonal applied electric fields. The second applied electric field intensity is delivered after full charging. These devices each contain a cathode (labelled 1), intradevice gel containing lithium and palladium deuterioxide (labelled 6), and anode (labelled 7)."

The original specification teaches (page 6, lines 1-5) and elaborates for those skilled in the art to make and use the subject matter defined by each of the rejected claims.

"The cathode in this preferred configuration is divided into parallel slabs. Between these slabs alternate deuterium-impermeable barriers. Application of the second electric field causes the deuterons already loaded in the cathode to redistribute, but the deuterium-impermeable barrier(s) act to enhance the desired reactions."

Claim 1 claims

"producing redistribution of said isotopic fuel within said loaded metal,"

The original specification teaches (page 7, lines 1-4), the best mode contemplated by the inventor of carrying out his invention

"The result is the piling up of deuterium at the deuterium-impermeable barriers (labeled 55). The heat energy is directed out via the heat pipes and the thermal bus."

In another embodiment, as the original specification teaches, the heat product is removed (page 6, lines 26-28),

"Said apparatus has a thermal bus connected to the heat pipes which are held in a mechanical connecting system (labelled 20)."

Claim 1 claims

"thereby controlling the product produced."

Each of these features, and those of the original specification of which this is the divisional is clearly claimed. The original specification describes the subject matter defined by each of the rejected claims, and enables any person skilled in the art to make and use the subject matter defined by each of the rejected claims, and sets forth the best mode contemplated by the inventor of carrying out his invention. The enablement of the original specification was demonstrated to be correct at the time of the original filing in Fusion Technology (of the American Nuclear Society) and elsewhere which demonstrate operability and utility [validation]. These include, but are not limited to, the following: Swartz (1998), Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85, Swartz (1997), Fusion Technology, 31, 63-74.

Until the Petition Decision of May 28, 2003 [which lists an erroneous patent number 09/586/426, but correctly lists the name, inventor, inventor's address, filing date, claims and issues] the Examiner had stated,

"New issues are amended claims 1, 5, 10 21, 22, 24, 26, and 28."

[Examiner Palabrica, Communication to Applicant, 4/15/03]

May it please the Board that the submitted changes for entry were minor and did fully comply with the Examiner's stated requirements, and were written so as to narrow the claims to obviate the outstanding rejection. The rewritten claims also addressed all issues noted by the Examiner and they did not raise new issues or contain any new matter. Attention of the Board is directed to the fact that the proposed amendments were necessary but could not be presented before the partial incomplete constructive assistance was received from the Examiner [requested pursuant to MPEP 707.07(j) and MPEP 706.03(d)].

Applicant respectfully disputes this on a claim by claim basis. A Petition was filed. The Petition Decision of May 28, 2003 indicates the office agrees in part regarding claims 5 and 22.

First, each and every change was made because the Examiner suggested it in his previous Communication (infra). Second, each and every change used material identical to the original specification and claims (infra). Third, the Applicant stated the above in the previous Communication. Fourth, each change will now be shown to be identical and exactly responding to what the Examiner suggested.

In Claim 1, the words "heat" and "nuclear" were only added after the Examiner suggested it in his previous Communication, and they are --in fact-- exactly consistent with the Examiner's very own comment where he said what this invention involved. The entire original specification and claims involved heat and heat removal and the like.

THE EXAMINER'S SUGGESTION FOR THE CHANGE:

"Claims 1, 10 and 21 are vague, indefinite and incomplete as to what is actually the product. (Note this specific rejection that applied to previous claims 1-14 was not addressed in Applicant's response to the previous Office Action)."

[Examiner Palabrica, previous Communication to Applicant, 2/3/03]

To comply pursuant to the Examiner's suggestion, Claim 1 was amended in the Applicant's previous response of March 24, 2003, as follows:

1. (Amended) In a process for producing heat or a nuclear product using a material loaded with an isotopic fuel, a method to control the production of said product which includes in combination:
 applying an electric field to load said isotopic fuel to said material,
 loading said isotopic fuel into said material,
 applying a second electric field in a non-parallel direction to the first applied electric fields,
 producing redistribution of said isotopic fuel within said loaded metal,
 thereby controlling the product produced.

The change was minor, was in response to the Examiner (supra), and involved NO NEW MATERIAL and is consistent with Examiner's own statement in his previous Communication to Applicant dated 2/3/03.

THE EXAMINER'S STATEMENT PROVING THIS IS NOT NEW MATERIAL

"In the current application the Applicant does not define the products of the claimed process and apparatus....the only possible "products" that can be formed in the claimed invention are nuclear fusion products. "

[Examiner Palabrica, previous Communication to Applicant, 2/3/03]

Therefore, given the Examiner's own statement (supra), and the original specification and claims consistent with this very material, and the entire previous docket with Examiner Wasil discussing this material, and the submitted Declarations discussing this material, truthfulness, and the normal standards of review, demand that this not be regarded as new material. For the Examiner to call "heat" and "nuclear" products "new" i) AFTER HE SUGGESTED IT and ii) when they are both in the original specification and claims, is --with all due respect-- disingenuous.

In Claim 5, the word "said" replaced the word "the" after the Examiner suggested it in his previous Communication. The Petition Decision of May 28, 2003 indicates the office agrees in part regarding claim 5.

In Claim 10, the words "heat" and "nuclear" were only added after the Examiner suggested it in his previous Communication, and they are --in fact-- exactly consistent with the Examiner's very own comment where he said what this invention involved. The entire original specification and claims involved heat and heat removal and the like.

"Claims 1, 10 and 21 are vague, indefinite and incomplete as to what is actually the product. (Note this specific rejection that applied to previous claims 1-14 was not addressed in Applicant's response to the previous Office Action).

[Examiner Palabrica, previous Communication to Applicant, 2/3/03]

To comply pursuant to the Examiner's suggestion, Claim 10 was amended in the Applicant's previous response of March 24, 2003, as follows:

10. (Amended) In a process for producing heat or a nuclear product using a material by a reaction, a method to control the redistribution of isotopic fuel loaded into said material which includes in combination:
 applying an electric field to load said isotopic fuel into said material,
 applying a second electric field to said material loaded with said isotopic fuel,
 thereby effecting redistribution of said isotopic fuel.

The change was minor, was in response to the Examiner, and involved NO NEW MATERIAL and is consistent with Examiner's own statement in his previous Communication to Applicant dated 2/3/03.

THE EXAMINER'S STATEMENT PROVING THIS IS NOT NEW MATERIAL

"In the current application the Applicant does not define the products of the claimed process and apparatus....the only possible "products" that can be formed in the claimed invention are nuclear fusion products. "

[Examiner Palabrica, previous Communication to Applicant, 2/3/03]

Therefore, given the Examiner's own statement (supra), and the original specification and claims consistent with this very material, and the entire previous docket with Examiner Wasil discussing this material, and the submitted Declarations discussing this material, honesty and the normal standards of review demand that this not be regarded as new material. For the Examiner to call "heat" and "nuclear" products new i) AFTER HE SUGGESTED IT and ii) when they are both in the original specification and claims, is --with all due respect-- improper.

Similarly, in Claim 21, the words "heat" and "nuclear" were only added after the Examiner suggested it in his previous Communication, and they are --in fact-- exactly consistent with the Examiner's very own comment where he said what this invention involved. The entire original specification and claims involved heat and heat removal and the like.

THE EXAMINER'S SUGGESTION FOR THE CHANGE:

"Claims 1, 10 and 21 are vague, indefinite and incomplete as to what is actually the product. (Note this specific rejection that applied to previous claims 1-14 was not addressed in Applicant's response to the previous Office Action).

[Examiner Palabrica, previous Communication to Applicant, 2/3/03]

The Examiner also suggested a clarification to show which of the recited steps produces the isotope redistribution.

THE EXAMINER'S SUGGESTION FOR THE CHANGE:

"Claim 21 recites in the preamble a method to effect redistribution of said isotope of hydrogen, whereas the body of the claim recites "thereby distributing said isotope of hydrogen within said loaded metal." It is unclear which of the recited steps produces the isotope redistribution."

[Examiner Palabrica, previous Communication to Applicant, 2/3/03]

To comply pursuant to the Examiner's suggestion, Claim 21 was amended in the Applicant's previous response of March 24, 2003, as follows:

Claim 21 has been amended as follows:

21. (Amended) In a process for producing heat or a nuclear product using a metal loaded with an isotope of hydrogen, a method to effect redistribution of said isotope of hydrogen in said material which includes in combination: applying an electric field to load said isotope of hydrogen into said metal, loading said metal with said isotope of hydrogen, thereafter applying a second electric field in a non-parallel direction to the first applied electric field, to thereby distribute said isotope of hydrogen within said loaded metal.

The change was minor, was in response to the Examiner (supra), involved NO NEW MATERIAL and is consistent with Examiner's own statement in his previous Communication to Applicant dated 2/3/03.

THE EXAMINER'S STATEMENT PROVING THIS IS NOT NEW MATERIAL

"In the current application the Applicant does not define the products of the claimed process and apparatus....the only possible "products" that can be formed in the claimed invention are nuclear fusion products. "

[Examiner Palabrica, previous Communication to Applicant, 2/3/03]

Therefore, given the Examiner's own statement (supra); and the original specification and claims consistent with this very material, and the entire previous docket with Examiner Wasil discussing this material, and the submitted Declarations discussing this material, honesty and the normal standards of review demand that this not be regarded as new material.

In Claim 22, the word "said" replaced the word "the" after the Examiner suggested it in his previous Communication. The Petition Decision of May 28, 2003 indicates the office agrees in part regarding claim 22.

In Claims 24, 26, and 28, the word "stopped by" replaced the word "impact" after the Examiner suggested it in his previous Communication. In retrospect, the meaning of the word "impact" was clear, suggesting that the Examiner's suggestion may not have been made to help the Applicant.

THE EXAMINER'S SUGGESTION FOR THE CHANGE:

"New claims 24, 26 and 28 recite the limitation of 'having said redistribution of said isotopic fuel impact a barrier impermeable to said isotopic fuel.' There is neither a written description nor an enabling disclosure of: a) what exactly is meant by the term, 'impact'; by how and in what manner such redistribution causes the so-called impact a fuel-impenetrable barrier"

[Examiner Palabrica, previous Communication to Applicant, 2/3/03]

To comply pursuant to the Examiner's suggestion, Claims 24, 26, and 28 were amended in the Applicant's previous response of March 24, 2003, as follows:

24.(Amended) In a method as in claim 21, where the additional step is taken of having said redistribution of said isotopic fuel stopped by ~~impact~~ a barrier impermeable to said isotopic fuel.

Claim 26 has been amended as follows:

26.(Amended) In a method as in claim 1, where the additional step is taken of having said redistribution of said isotopic fuel stopped by ~~impact~~ a barrier impermeable to said isotopic fuel.

Claim 28 has been amended as follows:

28. (Amended) In a method as in claim 10, where the additional step is taken of having said redistribution of said isotopic fuel stopped by ~~impact~~ a barrier impermeable to said isotopic fuel.

Each of these changes and those of the Examiner, in the light of the prior art, are minor. The changes were minor, were in response to the Examiner, and involved NO NEW MATERIAL.

What does the Board want the Applicant to do? Such behavior by the Examiner, in the light of the Office failing to enforce standards of review and accountability, are probably not appropriate for the Office or any other Federal agency. To the contrary, assistance of, and help for, a citizen of the USA would be more appropriate - perhaps consistent with the motto of the Office.

Appellant respectfully requests reconsideration and reversal of the Examiner's allegation of purported new material in Claims 1, 10, 21, 24, 26, and 28, or a substantive, precise and complete explanation from the Examiner of exactly what was "new" in the minor changes which were made in response to the Examiner's requests and which contained identical material to that within the original specification of the above-entitled application, as is just and reasonable.

ARGUMENT - REJECTION UNDER 35 U.S.C. 102

For each rejection under 35 U.S.C. 102, the Appellant hereby does fully and completely specify the errors in the rejection and why the rejected claims are patentable under 35 U.S.C. 102, including any specific limitations in the rejected claims which are not described in the prior art relied upon in the rejection.

The appealed claims do not stand or fall together. Claims 1, 10, and 21 are separately patentable and do not stand or fall together because they are materially distinct with respect to 35 USC 102. Claims 1, 10, and 21 are separately patentable because they are not unduly multiplied, have separate limitations, and are required because the invention described by the original specification of the above-entitled application is very complex.

Appellant acknowledges, but respectfully disputes, for the reasons discussed below said rejection.

The invention at issue in this case, '691, claimed by Claims 1, 5-8, 10-14, 21-30, is generally speaking a method to control the production of the desired products (such as heat) which includes in combination loading the hydrogen using a first applied electric field, and then at a later point in time applying a second electric field to redistribute said isotopic fuel within said material, with means to obstruct the flow of the loaded hydrogen.

Each of these features, and those of the original specification of which this is the divisional, is novel. The original specification describes the subject matter defined by each of the rejected claims, and enables any person skilled in the art to make and use the subject matter defined by each of the rejected claims, and sets forth the best mode contemplated by the inventor of carrying out his invention. The novelty and usefulness of the original specification was demonstrated to be correct at the time of the original filing in Fusion Technology (of the American Nuclear Society) and elsewhere which demonstrate operability and utility [validation]. These include, but are not limited to, the following: Swartz (1998), Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85, Swartz. (1997), Fusion Technology, 31, 63-74.

The Office states,

"Claims 1, 5-8, 10-14 and 21-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Westfall (U.S. 5,215,631)."

Applicant respectfully notes that this was discussed in the previous Communication with the Examiner on pages 17 through 25 and pages 31 to 32. Where is the Examiner's response? Instead, the Examiner, inadvertantly or unintentionally appears to just ask the same question, to deny Applicant both his Constitutional and civil rights.

The applicant notes that the application '970 -of which the present invention '691 is a continuation of- was filed 9/17/91 prior to Westfall (June 1st 1993). In addition it preceeds the filing date of Westfall (Oct. 11th, 1991). Nonetheless *in arguendo*, for the sake of argument, the applicant will now discuss Westfall in full detail to demonstrate that even if it was timely, which it is not, and if it were relevant to the present novel invention, which it is not.

The Office states that Westfall discloses,

"Note that applicant's claimed "isotopic fuel" reads on the hydrogen generated by Westfall's aqueous solution and his "material" reads on Westfall's "working electrode. ... This process reads on applicant's "loading isotopic fuel to the material."

THE TRUTH - Different Purposes. Westfall makes growing crystals at 4.2 feet per hour

US 5,215,631 discloses a process and an apparatus for growing large crystals by electrodeposition. Westfall, as discussed therein, grows enlarging metal crystals as shown in figures 2a through 2d, therein. Westfall's invention is to produce dendritic crystals and explicitly involves ribbon crystal and crystalline growth systems with growth rates (deposition rates) of 4.2 feet per hour in linear growth rate (column 36 lines 17 through 22). In Westfall, the crystals grow to become freestanding single crystals of tin

in its cubic and tetragonal forms. Westfall uses said grown crystals to make photovoltaic cells, as discussed in column 13, lines 55 through 66.

Westfall's crystals, grown at 4.2 feet per hour, do not have the purpose, advanced technology, features, and advantages of the present invention. Unlike Westfall, '691 teaches a method to produce a product which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material. This is clearly shown in the Figures, and discussed, in the original specification of 691.

The Office states that Westfall discloses,

"Westfall discloses a process for growing crystals by electrodeposition ... by passing current between the working and counter electrodes ... He teaches that hydrogen is generated in an aqueous system (e.g. see column 9, lines 32+)"

THE TRUTH - Different Inventions - Even The Surface of Westfall's Electrode changes in Position

US 5,215,611 discloses a process and an apparatus for growing crystals by electrodeposition. The electrode keeps moving (unlike the present invention) at 4.2 feet per hour (column 36 lines 17 through 22). Westfall --as it claims-- is simply a process and an apparatus for growing crystals in linear growth rate (column 36 lines 17 through 22), useful for freestanding single crystals of tin in its cubic and tetragonal forms. Even the anode used in Westfall is shaped to enhance the rate of growth of the crystal (column 5 lines 43 through 49) using "crucibles ... chosen ... to survive the corrosive nature of the molten salt baths" (column 32 lines 55 through 59). Westfall includes none of the features of the present invention.

By contrast, the present invention is not a process and an apparatus for growing crystals by electrodeposition, but in the preferred embodiment, a method to control the production of heat or nuclear product which includes in combination loading an isotopic fuel into a material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material and means to extract product using magnetic field inhomogeneity, based differential magnetic susceptibilities. Westfall does not even discuss loading. Thus, the present invention is novel and not anticipated by the cited art, Westfall. Nowhere in Westfall, or in any combination of the Examiner's art, is any aspect of the features of '691.

The Office states that Westfall discloses, *namely*, "Conformal electric fields result in near uniform intensities and near uniform ion diffusion distances promoting superior deposition system stability. . . . Westfall discloses palladium as working electrode and the electrolyte is an aqueous solution that inherently contains some deuterium. Palladium is known in the art to absorb deuterium. Applicant himself admits to this well-known, scientific fact by his claims."

THE TRUTH - Different Metals for Different Purposes with Different Loadings

By contrast to what the Examiner claims, THIS patent yields non-uniform distributions. Furthermore, the cited patent, US 5,215,631 discloses enlarging metal crystals as shown in figures 2a through 2d, therein with growth rates (deposition rates) of 4.2 feet per hour in linear growth rate (column 36 lines 17 through 22; said enlarging metal crystals shown in figures 2a through 2d, therein). The anode used in Westfall is the shaped to enhance the rate of growth of the crystal (column 5 lines 43 through 49). In contrast, the original specification and claims of the present invention, '691 claims a method to control the production of heat or nuclear product which includes in combination loading an isotopic fuel into a material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material and means to extract product using magnetic field inhomogeneity, based differential magnetic susceptibilities.

The present invention uses hydrogen INSIDE a metal such as palladium for purposeful reasons, which are clearly different from the ions making large crystals quickly OUTSIDE the metal, such as described in Westfall. Attention is directed to the fact that in Westfall, unlike the present invention, there are enlarging metal crystals, ribbon crystal-line growth systems, tin in its cubic and tetragonal forms, and crucibles using molten salt baths.

Westfall's invention, a process and an apparatus for growing crystals of tin in its cubic and tetragonal forms controls ions OUTSIDE of the enlarging metal crystals (figures 2a through 2d, therein). Westfall refers to saturation OUTSIDE of the metal crystal and is an entirely different teaching from the present invention. Westfall does not even discuss loading into the material (underlined in Examiner's quote for emphasis). Furthermore there is no mention of internal flows within any part of Westfall. Thus, it cannot read on the present invention, a method to produce a product which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material.

Corroborating this, Westfall admits that the apparatus of Westfall is no more than a means to a process and an apparatus for growing crystals by electrodeposition with rapid metal growth rates at 4.2 feet per hour (column 36 lines 17 through 22). Westfall admits it makes photovoltaic cells (column 13, lines 55 through 66). Westfall also admits that crucibles must be chosen which are able to survive corrosive molten salt baths (column 32 lines 55 through 59).

Attention is directed to the fact that the following elements shown in Westfall are not present, or needed, or claimed in the present invention. Said unneeded elements numbered in Westfall as bath (4, column 8, line 5), reference electrode (14), light source (18), stepping motor (22) and its mechanical connection to the cathode (8) are not needed in the present invention, as described in the original specification and claims, thereby proving the present invention has significant novelty and non-obviousness.

As the original specification states (page 1, lines 10-12), ...

(t)he method and apparatus uses at least two non-parallel electric-fields to control the loading into the material and redistribution of the isotopic fuel within the material."

The original specification teaches (page 5, lines 14-17), the best mode contemplated by the inventor of carrying out his invention using the first applied electric field intensity (referring to the figures):

"Figure 2 is a crosssectional drawing (t)his device has two orthogonal applied electric fields. The first (labelled E-field number 1 in the the figure) is that which is applied to charge the palladium with deuterons."

Where in Westfall are 691's two orthogonal applied electric fields, or having the second applied electric field intensity delivered after full charging?

The original specification continues (page 5, lines 17-22) with the best mode contemplated by the inventor of carrying out his invention using the second applied electric field intensity.

"The second applied electric field intensity is delivered after full charging has been achieved. In the figure the anode and cathode are labelled as 7 and 1. The electrolyte solution or gel is labelled as 6. The connections for the first electric field are labelled as 81 and 82. The connections for the second electric field are labelled as 85 and 86. The mechanical casing is labelled 20."

Where in Westfall are 691's are there separate connections for the applied electric field intensities?

The original specification teaches (page 6, lines 1-5) and elaborates for those skilled in the art to make and use the subject matter defined by each of the rejected claims.

"The cathode in this preferred configuration is divided into parallel slabs. Between these slabs alternate deuteron-impermeable barriers. Application of the second electric field causes the deuterons already loaded in the cathode to redistribute, but the deuteron-impermeable barrier(s) act to enhance the desired reactions."

Where in Westfall are 691's is the cathode divided into parallel slabs and alternate deuteron-impermeable barriers?

The original specification teaches (page 7, lines 1-4), the best mode contemplated by the inventor of carrying out his invention

"The result is the piling up of deuterium at the deuteron-impermeable barriers (labeled 55). The heat energy is directed out via the the heat pipes and the thermal bus."

Where in Westfall are 691's is the second electric field is directed through the pairs of barriers and electrode to enhance the desired reactions?

The original specification teaches (page 5, lines 23-25) the best mode contemplated by the inventor of carrying out his invention with respect to the impermeable barrier (referring to the figures).

"The deuteron impermeable barrier is comb-shaped in this preferred configuration, and is labelled 55 in figure 13."

Where in Westfall are 691's are there deuteron impermeable barriers which are comb-shaped?

These elements of '691 are not present in Westfall.

Therefore, the material of Applicant's invention, '691, does not read on Westfall's process and an apparatus for growing crystals by electrodeposition, as the Examiner suggests.

The apparatus described in Westfall has none of the properties of the apparatus described in the present invention.

This demonstrates they are different patents entirely with different uses, reasons, and methods.

The Office states, *in re Westfall, 691, claim 1, col. 1, lines 1-3*

"Clearly, the first electric field must first effect movement of ions from the electrolytic bath towards the working electrode before the orthogonal electric field can effect control of distribution of these ions to form the desired crystal growth.

Note further that claims 8 and 13 are anticipated by Westfall's method that provides for application of magnetic field, in addition to electric fields (e.g. see column 24, lines 59+). As to the specific limitation of a "spatially inhomogeneous magnetic field," any applied magnetic field will have "spatial inhomogeneity" because of inherent imperfections in the material (e.g., non-uniform crystal structure) or the source of the magnetic field (e.g., if an a.c. electrical source produces the magnetic field, any voltage fluctuations, which inherently always occur, will cause inhomogeneity in the magnetic field. Applicant's claim language reads on such. As to claim 14, note that the Westfall's working electrode c on either be a cathode or an anode (see column 4, lines 26 and 27)"

The material of Applicant's invention, '691, does not read on Westfall's process as the Examiner suggests.

When hydrogen appears in Westfall it is not for loading. It is to the air as gas (column 9, line 35 through 43, especially lines 39 referring to "bubbling"). This is different from that used in the present invention which is loaded as taught in '691 in the present invention's original specification and claims, and will be explained in detail below. This "bubbling" of hydrogen in Westfall is different from this application which involves loading an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material, as discussed in the present invention's original specification and claims.

Furthermore, there is no mention of internal flows in the metal in Westfall. Furthermore, in Westfall all applied fields are synchronous, whereas in '691 they are metachronous (at different points in time).

Furthermore, unlike the present invention, Westfall does not discuss loading. Furthermore there is no mention of internal flows within any part of Westfall. Corroborating this, in the present invention, the hydrogen sought is that within the palladium, which is not even discussed in Westfall.

US 5,215,631 discloses a process and an apparatus for growing crystals by electro-deposition which 1) involves ions other than hydrogen, 2) and they are on the OUTSIDE of the metal. Unlike the present invention, Westfall does not discuss loading. Furthermore there is no mention of internal flows within any part of Westfall. By contrast, the

original specification and claims of the present invention, '691, claim a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material.

In the preferred embodiment, this device has two orthogonal applied electric fields with the second applied electric field intensity is delivered after full charging has been achieved. The deuteron impermeable barrier is comb-shaped labelled 55 and the cathode in the preferred configuration is divided into parallel slabs and alternate deuteron-impermeable barriers. Application of the second electric field is directed through the pairs of barriers and electrode to enhance the desired reactions. Where is this in the cited patent?

If the materials and elements used in Westfall, as suggested by the examiner, were to be used in the present invention, they would not function. Furthermore, if the present invention was used as discussed in Westfall, the materials of '691 would not even be functional. Temperatures required for Westfall are such that "crucibles must be chosen which are able to survive the corrosive nature of the molten salt baths" (column 32 lines 55 through 59). If the present invention, '691, was used as described in Westfall, it would not even work.

The Office states that Westfall discloses,
"hydrogen is formed outside the electrode in Westfall and not inside"

THE TRUTH - Different Locations of Flow

Actually, US 5,215,631 discloses growing enlarging metal crystals at impressive growth rates (deposition rates) of 4.2 feet per hour in linear growth rate (column 36 lines 17 through 22), used to make freestanding single crystals of tin in its cubic and tetragonal forms which Westfall then uses to make photovoltaic cells, as discussed in column 13, lines 55 through 66. Unlike the present invention, the anode used in Westfall is the shaped to enhance the rate of growth of the crystal (column 5 lines 43 through 49).

Saturation in the present invention involves **LOADING** of the hydrogen **INSIDE** the metal. This has nothing to do with Westfall. The applicant thanks the Examiner for pointing this out since there is a possible point of confusion and the applicant will correct the claims accordingly with replacement of saturation with "loading" which is not new material since it was mentioned in the original specification and claims.

Furthermore, in Westfall all applied electric field intensities are synchronous in time, whereas in '691 they are applied metachronously (at different points in time).

The Office states that Westfall reads on,

"c) it does not have the following features: means to control the distribution, means including barriers impenetrable to flow of isotopic fuel, three separate connections for the applied field intensities; cathode divided into parallel slabs; second electric field directed through pairs of barriers and electrode to enhance the desired reactions; coin-shaped impermeable barriers; "

THE TRUTH -Catastrophic Flow differs from Electrochemical Throwing power

The material of Applicant's invention, '691, does not read on Westfall as the Examiner suggests. Westfall's enlarging metal crystals (figures 2a through 2d, therein) in ribbon crystal and crystalline growth systems have claims and teachings which are not the same as a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material, as discussed in the present invention's original specification and claims

The Office states that ,

"...the orthogonal field resulting from a conformal counter electrode configuration and its beneficial effect on crystal formation read, respectively, on applicant's "second electric fields and it's effect of "redistribution of the fuel within the material."

"Westfall discloses an electrodeposition process using orthogonal electric fields."

THE TRUTH - Different Current Locations, Purposes, Time courses

Westfall does not disclose orthogonal electric fields as taught in the present invention. The material of Applicant's invention, '691, does not read on Westfall's process and apparatus for growing crystals by electrodeposition, as the Examiner suggests. Westfall's product produces dendritic crystals with growth rates (deposition rates) of 4.2 feet per hour (column 36 lines 17 through 22) to make photovoltaic cells (column 13, lines 55 through 66).

Westfall's invention which is a process and an apparatus for growing crystals by electrodeposition is not the same as a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material.

Therefore, the hydrogen which is OUTSIDE the crystal in Westfall, or producing hydrogen in Westfall, is different in purpose and use AS CLAIMED from the present invention. It is nonsense to consider Westfall's crystal growth being product removed through the growing metal crystal as the same as heat produced in the present invention. The applicant thanks the Examiner for pointing this out since there is a possible point of confusion and the applicant will correct the claims accordingly as it was mentioned in the original specification and claims.

Furthermore, in Westfall all applied electric field intensities are synchronous in time, whereas in '691 they are applied metachronously (at different points in time).

== Error By Examiner Regarding Contamination ==

The Office inaccurately states,

"...the limitation in the claims regarding an alternating barrier to the isotopic fuel, palladium is known in the art to contain gold as an impurity. Gold is a hydrogen isotope barrier as the Applicant himself admits (see claims in the parent application). Therefore, when the palladium coating is formed on the working electrode, inherently gold will also be deposited. Operation of the Westfall's apparatus and process will inherently also produce alternate coatings of material containing the barrier gold."

THE TRUTH - Contamination Quantity Is Insufficient

With all due respect, this is inaccurate because the contaminants will electrodeposit and because of the divergence principle (no net creation of palladium so therefore the divergence = 0). The Examiner should have read the books which the Applicant suggested previously regarding this because they are well-known to those familiar with the state-of-the-art. The applied electric field is direct to move cations (i.e. Pd^{++}) to the cathode where it plates out. The Examiner is referred to the following on electrochemistry and continuum electrodynamics, sine qua non to those skilled in the art [Uhlig, H.H., "Corrosion and Corrosion Control", Wiley (1971), Bockris, J., K.N. Reddy, "Modern Electrochemistry", Plenum Press (1970), Von Hippel, A. "Dielectric Materials and Applications", MIT Press, (1954); Von Hippel, A., D.B. Knoll, W.B. Westphal, "Transfer Of Protons Through 'Pure' Ice Ih Single Crystals", J. Chem. Phys., 54, 134, (also 145), (1971), and Melcher, J.R., "Continuum Electromechanics", MIT Press, Cambridge, (1981). Therefore the Examiners statement is incorrect after the application of the only electric field intensity in Pons, and the first electric field intensity in the present application.

== Error By Examiner Regarding Contamination Quantity And Location ==

The Office inaccurately states that nickel is in stainless steel, but as the Examiner twists the cited art, this, too, is inaccurate because the purported contaminant is such a minor inadvertant or essentially unavailable fraction and because of the divergence principle. As the Examiner may have inadvertantly or unintentionally forgot, the applied electric field will move cations (i.e. Ni^{++}) to the cathode where they plates out. Therefore, the Examiner's comment is also inaccurate because the quantity is insufficient and is at the wrong location. There is not enough quantity in the putative contaminants which the Examiner postulates will be electrodeposit. Again, reference is made to the books which the Applicant suggested.

Therefore the Examiner's statement is incorrect, and probably would not have been made if the Examiner had calculated the entire volume integral of the cation concentration in the solution and metal, and the availability by corrosion, and then considered the substantially larger quantity of atoms required to achieve the teachings of the present application which then occur at a different location as described in the present application and its parent, of which it is a Divisional. If the present invention, '695, was used as described, it would not even work.

In summary, the subject matter of Applicant's invention, '691, does not read on the Examiner's cited art which are not the same as a method to control the production of heat or nuclear product which includes in combination loading an isotopic fuel into a material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material and means to extract product using magnetic field inhomogeneity, based differential magnetic susceptibilities.

Claims 1, 10, 11, 21, 22, and 24-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinsella et al. (U.S. 3,682,806). This was discussed in the previous Communication with the Examiner on pages 26 through 32. Where is the Examiner's response? Instead, the Examiner once again, has inadvertantly or unintentionally just unfaily asked the same question. Notwithstanding the above, as discussed below, the Applicant demonstrates that said rejection is an error.

The Office states,

"The features cited by the Applicant are -non-limiting because they are not recited in the claims. Note that although claims are interpreted in light of the specification, limitations from the specification are not read into the claims."

Kinsella --as it claims-- is simply a process for electroplating metallic articles with carboxylic film-forming materials in a process utilizing lithium hydroxide as solubilizer (see Fig. 1 and column 8, 2nd paragraph). Kinsella demonstrates the most rudimentary of an electroplating process and it does not have the purpose, advanced technology, features, and advantages of the present invention. Kinsella, uses a stainless steel cathode, and only a one stage process. Kinsella uses no loading, or has no features of the present application. Corroborating this, from Kinsella, the Examiner quotes that 'Fig. 1 shows the anode (4), which is the material to be coated, a stainless steel cathode (6)'. Furthermore, as additional further proof in Kinsella the text explicitly states, as the Examiner quotes '*An alternative embodiment can have an auxiliary platinum anode (7) and an auxiliary stainless steel cathode (8)*'.

Kinsella leads away from the present invention as it uses a cationic membrane to divide the cathodic compartment (number 1 in Kinsella, column 9 line 65), a regenerated ion exchange resin (column 10 line 14), a auxiliary platinum anode ("7", column 10 line 15), a selective electrodialysis membrane to contain ion exchange resin ("9" and "12", column 10 lines 19-23), and a solubilized feed makeup material introduced to the anode ("11", column 10 line 11), which are not needed in the present invention, as described in the original specification and claims.

In addition, Kinsella, (page 2, column 2, lines 7-15) teaches the loading current is into the volume of the cathode (in contrast to the cited patent).

Thus, the present invention, unlike Kinsella which uses methods well known to those who work in the art, is not an electroplating process of carboxylic film-forming materials, but in the preferred embodiment is a two-stage process involving loading of hydrogen into a metal electrode such as palladium, including a first stage of electrode loading, followed by, a second stage of sudden rapid ('catastrophic') flow of the loaded hydrogen within the metal. The present invention uses a two-stage process, loading of hydrogen, a metal electrode such as palladium, a first stage of electrode loading, and a second stage of sudden rapid ('catastrophic') flow of the loaded hydrogen within the metal, for purposeful reasons, which are clearly different from the carboxylic film-forming processes described in Kinsella.

Corroborating this, attention is directed to the fact that the following elements shown in Kinsella are not present, or needed, or claimed in the present invention. Said unneeded elements numbered in Kinsella as 1 (cationic membrane to divide the cathodic

compartment (column 9 line 65), 7 (a auxiliary platinum anode (column 10 line 15), 9 (a selective electrodialysis membrane to contain ion exchange resin (column 10 lines 19-23), and 11 (a solubilized feed makeup material introduced to the anode (column 10 line 11) are not needed in the present invention, as the described in the original specification and claims, thereby proving the present invention has significant novelty and non-obviousness.

If the materials and elements used in Kinsella, here the cationic membrane to divide the cathodic compartment (number 1 in Kinsella, column 9 line 65), a regenerated ion exchange resin (column 10 line 14), a auxiliary platinum anode ("7", column 10 line 15), a selective electrodialysis membrane to contain ion exchange resin ("9" and "12", column 10 lines 19-23), and a solubilized feed makeup material introduced to the anode ("11", column 10 line 11), as suggested by the examiner, were to be used in the present invention, they would not function. Similarly, if the present invention, '691, was used as described in Kinsella, it would not be functional.

The present invention is a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material. In the preferred embodiment, this device has two orthogonal applied electric fields with the second applied electric field intensity is delivered after full charging has been achieved. The deuteron impermeable barrier is comb-shaped. Where is this in the cited patent?

The materials described in Kinsella do not have the properties of the materials described in the present invention.

The methods described in Kinsella are not the methods described in the present invention.

'691 is novel and not anticipated by Kinsella. Nowhere in Kinsella is any aspect of the features of '691.

The Office states,

"Stainless steel contains nickel, and nickel or its alloys is disclosed by the Applicant as acceptable material (see claim 6).

b) Nickel is known in the art to absorb deuterium.-Applicant himself admits to this well-known, scientific fact by his claims."

THE TRUTH - The Examiner's Current Analogies are Not Accurate

It is improper to compare Kinsella's 'electrodeposition current' to the present invention's well taught loading current.

In Kinsella, the loading current is onto the surface of the cathode in contrast to the cited patent which loads the volume for different purpose.

Kinsella electroplates metallic articles with carboxylic films (column 8, 2nd paragraph).

Unlike the present invention where there is a specialized palladium (or other hydrogen loading) cathode, in Kinsella, there is only a stainless steel cathode. Corroborating this, from Kinsella, the Examiner quotes that 'Fig. 1 shows the anode (4), which is the material to be coated, a stainless steel cathode (6)'. Furthermore, as additional further proof in Kinsella the text explicitly states, as the Examiner quotes 'An alternative embodiment can have an auxiliary platinum anode (7) and an auxiliary stainless steel cathode (8)'.

Further corroborating this, attention is directed to the fact that Kinsella leads away from the present invention as it uses a cationic membrane to divide the cathodic compartment (number 1 in Kinsella, column 9 line 65), a regenerated ion exchange resin (column 10 line 14), a auxiliary platinum anode ("7", column 10 line 15), a selective electro dialysis membrane to contain ion exchange resin ("9" and "12", column 10 lines 19-23), and a solubilized feed makeup material introduced to the anode ("11", column 10 line 11) which are not needed in the present invention, as the described in the original specification and claims. This proves that the present invention has significant novelty and non-obviousness.

Attention is directed to the fact that in Kinsella, unlike the present invention where there is a specialized palladium (or other hydrogen loading) cathode, in Kinsella, there is only a stainless steel cathode, only a one stage process, no loading, and no features of the present application.

Even the currents are handled differently. Kinsella, (page 2, column 2, lines 7-15) teaches the loading current is into the volume of the cathode in contrast to the cited patent (infra).

The Office states that Kinsella discloses, *"d) 'Full charging' is not a limitation recited in the claims. All of the claims recite the term 'loading' not 'full charging.' See item c) above*
e) Claims do not recite how the charging current is to be delivered. See item c) above.

As to the issue of alternating barriers and thereby clauses, see section ~ above. The other items raised by the Applicant regarding Kinsella are the same as those discussed in section ~ above."

THE TRUTH - REGENERATION CURRENT OUTSIDE A METAL HAS NOTHING TO DO WITH CATASTROPHIC FLOW CURRENT WITHIN A METAL

'691 teaches and claims a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material.

Kinsella's process is for the purpose of electroplating metallic articles with carboxylic films.

Attention is directed to the fact that Kinsella uses an auxiliary platinum anode ("7", column 10 line 15) which is not needed in the present invention, as the described in the original specification and claims. This proves that the present invention has significant novelty and non-obviousness.

Furthermore, in Kinsella all applied electric field intensities are synchronous in time, whereas in '691 they are applied metachronously (at different points in time).

The Office states,
"Note that applicant's 'isotopic fuel' in the claim language reads on the lithium anions that form on the anode, 'material' reads on 'anode', and 'orthogonal electric field' reads on the orthogonal fields produced by the electrodeposition current and the regeneration current

THE TRUTH - ELECTRODEPOSITION CURRENT IS NOT THE LOADING CURRENT

The material of Applicant's invention, '691, does not read on Kinsella's an electroplating process carboxylic film-forming materials, as the Examiner suggests.

Kinsella's invention which is an electroplating process carboxylic film-forming materials which cannot be the same as a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material.

Kinsella --as it claims-- processes carboxylic film-forming materials with lithium hydroxide as solubilizer (see Fig. 1 and column 8, 2nd paragraph). This cannot read on the hydrogen of the present patent because the applicant uses hydrogen as the loaded material.

In addition, the 'anode' of Kinsella cannot be the 'material' because in the present patent, it is cathodically controlled and used for a different purpose.

The 'electrodeposition current' cannot read on 'loading of isotopic fuel into material' because in Kinsella, unlike the present invention where there is a specialized palladium (or other hydrogen loading) cathode, there is only a stainless steel cathode (6). Furthermore, Kinsella uses a cationic membrane to divide the cathodic compartment (number 1 in Kinsella, column 9 line 65), a regenerated ion exchange resin (column 10 line 14), a auxiliary platinum anode ("7", column 10 line 15), a selective electrodialysis membrane to contain ion exchange resin ("9" and "12", column 10 lines 19-23), and a solubilized feed makeup material introduced to the anode ("11", column 10 line 11) which are not needed in the present invention, or used therein for the purposes which Kinsella states. This proves that the present invention has significant novelty and non-obviousness.

As the original specification states (page 1, lines 10-12), ...

(t)he method and apparatus uses at least two non-parallel electric-fields to control the loading into the material and redistribution of the isotopic fuel within the material."

The original specification teaches (page 5, lines 14-17), the best mode contemplated by the inventor of carrying out his invention using the first applied electric field intensity (referring to the figures).

"Figure 2 is a crossectional drawing (t)his device has two orthogonal applied electric fields. The first (labelled E-field number 1 in the the figure) is that which is applied to charge the palladium with deuterons."

Where in Kinsella are 691's two orthogonal applied electric fields, or having the second applied electric field intensity delivered after full charging?

The original specification continues (page 5, lines 17-22) with the best mode contemplated by the inventor of carrying out his invention using the second applied electric field intensity.

"The second applied electric field intensity is delivered after full charging has been achieved. In the figure the anode and cathode are labelled as 7 and 1. The electrolyte solution or gel is labelled as 6. The connections for the first electric field are labelled as 81 and 82. The connections for the second electric field are labelled as 85 and 86. The mechanical casing is labelled 20."

Where in Kinsella are 691's are there separate connections for the applied electric field intensities?

The original specification teaches (page 6, lines 1-5) and elaborates for those skilled in the art to make and use the subject matter defined by each of the rejected claims.

"The cathode in this preferred configuration is divided into parallel slabs. Between these slabs alternate deuteron-impermeable barriers. Application of the second electric field causes the deuterons already loaded in the cathode to redistribute, but the deuteron-impermeable barrier(s) act to enhance the desired reactions."

Where in Kinsella are 691's is the cathode divided into parallel slabs and alternate deuteron-impermeable barriers?

The original specification teaches (page 5, lines 23-25) the best mode contemplated by the inventor of carrying out his invention with respect to the impermeable barrier (referring to the figures).

"The deuteron impermeable barrier is comb-shaped in this preferred configuration, and is labelled 55 in figure 13."

Where in Kinsella are 691's are there deuteron impermeable barriers which are comb-shaped?

These, and other elements of '691, are not present in Kinsella.

Kinsella's invention which is an electroplating process carboxylic film-forming materials is not the same as a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material.

LAW

Appellant respectfully notes that this was discussed in the previous Communication but has not been addressed with specificity and precision. These patents are very different far beyond the fact that they do not involve loading, beyond the fact that they use other components not in the present invention, and have a different purpose and method, and they do not disclose a sequential second applied electric field intensity after full charring has been achieved, and that Kinsella delivers the charging current into the bath instead of the cathode. It is far beyond that. The material of Applicant's invention, '691 does not read on the Examiner's cited art. Furthermore, it is improper to compare Pons to the present invention for several reasons which the Applicant already discussed with the Examiner, but to which the Examiner has NOT yet completely and substantively responded. In particular, as to Section 102 rejections, it is stated in M.P.E.P. 706.2 that:

'The distinction between rejections based on 35 USC 102 and those based on 35 USC 103 should be kept in mind. Under the former, the claim is anticipated (emphasis added) by the reference.'

In this same connection, The Court of Customs and Patent Appeals said in *In re Arkely, Eardley and Long*, 172 U.S.P.Q. 524, 526 (CCPA, 1972):

'It is to be noted that rejections under 35 USC 103 are proper where the subject matter claimed 'is not identically disclosed or described'(emphasis by the Court) 'in the prior art,' indicating that rejections under 35 USC 102 are proper only when the claimed subject matter is identically disclosed or described in 'the prior art'.

Therefore, given the above, the independent claims, and hence all claims, distinguish over the reference cited under Sec. 102. Thus, the present invention, a method to control the production of heat or nuclear product which includes in combination loading an isotopic fuel into a material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel, is novel, is not obvious, and does distinguish from all previous art.

Given the above, the Examiner should be fair, should answer the Declarations, should thereby answer the previous Orders of the Board, and should answer with specificity all explicitly discussed issues herein and in the previously submitted but substantially ignored response, or after reconsideration with respect to novelty (Sec. 102), allowance is respectfully requested by the Applicant.

Given the above, reconsideration with respect to novelty (Sec. 102) is respectfully requested by the Appellant.

ARGUMENT - Claim Rejections under 35 USC § 103

For each rejection under 35 U.S.C. 103, the Appellant hereby does fully and completely specify the errors in the rejection and the specific limitations in the rejected claims which are not described in the prior art relied on in the rejection. Appellant also explains how such limitations render the claimed subject matter unobvious over the prior art.

Claim Rejections - 35 USC § 103

Claims 8 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cedzynska et al. in view of Wesffall, as applied to claims 1, 5-7, 10-12, 14 and 21-30 above, and further in view of anyone of Edwards, Sadoway (WO 91/06959) or Van Noorden (NL 8909-962-A) or Dufour (WO 91/01036). Claims 1, 5-7, 10-12, 14 and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cedzynska et al. (WO 93/01601) or Edwards (WO 90/1541 6) in view of Wesffall.

The appealed claims do not stand or fall together. Claims 1, 10, and 21 are separately patentable and do not stand or fall together because they are materially distinct with respect to 35 USC 103. Claims 1, 10, and 21 are separately patentable because they are not unduly multiplied, have separate limitations, and are required because the invention described by the original specification of the above-entitled application is very complex.

Appellant respectfully notes that this was discussed in the previous Communication with the Examiner. The Examiner states, "*Applicant's traverse of Edwards, Sadoway, Van Noorden and Dufour are not convincing for reasons similar to those described in sections 8 and 9 above.*", but never for each gives substantive, precise and accurate answers. The Examiner simply ignores the Applicant's explanations and submitted Declarations. Notwithstanding the above, this shall be re-addressed.

BACKGROUND: Westfall (US 5,215,631)

The Office states,

"2A The combination of Cedzynska et al. and Wesffall disclose the applicant's claims except for the use of magnetic fields in fusion."

THE TRUTH - Different Purposes. Westfall makes growing crystals at 4.2 feet per hour

The applicant notes that the application '970 -of which the present invention '691 is a continuation of- was filed 9/17/91 prior to Westfall (June 1st 1993). In addition it precedes the filing date of Westfall (Oct. 11th, 1991). Nonetheless *in arguendo*, for the sake of argument, the applicant will now discuss Westfall in full detail to demonstrate that even if it was timely, which it is not, and if it were relevant to the present novel invention, which it is not.

US 5,215,631 discloses a process and an apparatus for growing large crystals by electrodeposition. Westfall, as discussed therein, grows enlarging metal crystals as shown in figures 2a through 2d, therein. Westfall's invention is to produce dendritic crystals and explicitly involves ribbon crystal and crystalline growth systems with growth rates (deposition rates) of 4.2 feet per hour in linear growth rate (column 36 lines 17 through 22). In Westfall, the crystals grow to become freestanding single crystals of tin in its cubic and tetragonal forms. Westfall uses said grown crystals to make photovoltaic cells, as discussed in column 13, lines 55 through 66.

Westfall's crystals, grown at 4.2 feet per hour, do not have the purpose, advanced technology, features, and advantages of the present invention. Unlike Westfall, '691 teaches a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material. This is clearly shown in the Figure 2, and discussed, in the original specification of 691.

Furthermore, in Westfall all applied electric field intensities are synchronous in time, whereas in '691 they are applied metachronously (at different points in time).

BACKGROUND: Cedzynska et al. (WO 93/01601)

The Office states,

"Claims 1, 5-7, 10-12, 14 and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cedzynska et al. (WO 93/01601) or Edwards (WO 90/1541 6) in view of Westfall."

Cedzynska et al. (WO 93/01601) is a rudimentary Fleischmann-pons system which has the modification of "alternately charging and discharging electrodes".

Cedzynska et al. (WO 93/01601) has a filing day of July 8, 1992. The applicant notes that the application '970 -of which the present invention '691 is a continuation of- was filed 9/17/91. Nonetheless *in arguendo*, for the sake of argument, the applicant will now discuss Cedzynska in full detail to demonstrate that even if it was timely, which it is not, and if it were relevant to the present novel invention, which it is not.

In fact, attention is directed to the fact that Cedzynska leads away from the present invention as it uses a rudimentary Fleischmann-pons system and "alternately charging and discharging electrodes". This proves that the present invention has significant novelty

and non-obviousness. Cedzynska et al. does not have any of the features of the present invention.

BACKGROUND: Edwards (WO 90/15416)

The Office states;

"Edwards disclose a method for production of thermal energy comprising passing an electric current through electrodes immersed in a liquid electrolyte containing a higher isotope of a low atomic weight atom and applying a magnetic influence to the electrolyte or one or each electrode. The electrolyte may contain lithium and the electrode can be palladium or titanium (see Figs. 1 and 2, and claims)."

Edwards (WO 90/15416) is a simple Fleischmann-Pons system with a rudimentary magnetic field "to distort electrically charged species forming during the electrolysis process at the anode or cathode to control the rate of fusion of charge atoms" (page2, lines 15 through 18). The orientation is not given. Electrolysis is taught. In fact, attention is directed to the fact that Edwards leads away from the present invention as it uses a simple Fleischmann-Pons system and a rudimentary magnetic field "to distort electrically charged species forming during the electrolysis process at the anode or cathode to control the rate of fusion of charge atoms" (page2, lines 15 through 18). The orientation is not given. Electrolysis is taught. Edwards does not have any of the features of the present invention.

BACKGROUND: Sadoway (WO 91/06959)

Sadoway (WO 91/06959) is a simple Fleischmann-Pons system. According to Sadoway the applied magnetic field comes from an electromagnetic or a permanent magnet which is used to "enhance fusion initiation" [Page 6, line 13]. Sadoway (WO 91/06959) has an international filing day of October 25th 1990 and a priority day of October 25, 1989. In fact, attention is directed to the fact that Sadoway leads away from the present invention as it uses a simple Fleischmann-Pons system and a magnetic field to "enhance fusion initiation" [Page 6, line 13]. With all the respect, Swartz (SN 07/371,937, filed June 27, 1989, now SN 09/750,480) was the first to use magnetic fields to improve fusion and enhance the fusion rates. In the present invention, 691, there is used an applied magnetic field which is spatially inhomogeneous and is used to extract products based on differential magnetic susceptibilities. This is a very different from the use of the magnetic field in Sadoway or Swartz (SN 07/371,937, now SN 09/750,480). Sadoway does not have any of the features of the present invention.

BACKGROUND: Van Noorden (NL 8909-962-A)

Van Noorden (NL 8909-962-A) is invention for a simple Pons and Fleischmann system used to generate neutrons. Van Noorden uses a very homogeneous magnetic field through means of "an electric coil in which the electrolysis cell is mounted". Van Noorden (NL 8909-962-A) is dated 12/1/89. In fact, attention is directed to the fact that Van Noorden leads away from the present invention as it uses a simple Pons and Fleischmann system, generates neutrons, and has a very homogeneous magnetic field through means of "an electric coil in which the electrolysis cell is mounted". Simple electrodynamics reveals that the magnetic field intensity is nearly constant therein. There is no planned applied spatial inhomogeneity. Furthermore, Van Noorden (NL 8909-962-A) is dated 12/1/89. With all the respect, Swartz (SN 07/371,937, filed June 27, 1989, now SN 09/750,480) was the first to use magnetic fields to improve fusion and enhance the fusion rates (July 1989). In the present invention, 691, there is used an applied magnetic field which is spatially inhomogeneous and is used to extract products based on differential magnetic susceptibilities. This is a very different from the use of the magnetic field in Sadoway or Swartz (SN 07/371,937, now SN 09/750,480). This proves that the present invention has significant novelty and non-obviousness.

Van Noorden (NL 8909-962-A) uses a simple Pons and Fleischmann system, a neutron generating subsystem, and a very homogeneous magnetic field. It is constant therein. There is no extraction. There is no planned applied inhomogeneity. Van Noorden does not have any of the features of the present invention.

BACKGROUND: Dufour (WO 91/01036)

Dufour (WO 91/01036) is a simple Fleischmann-Pons apparatus, and has a filing day of July 6, 1990. In fact, attention is directed to the fact that Dufour leads away from the present invention as it uses said imple Fleischmann-Pons apparatus with a voltage source with a "pulse operating range of 10 hertz to 1 MHz" (page 10), which is not needed in the present invention, as the described in the original specification and claims. This proves that the present invention has significant novelty and non-obviousness. Dufour does not have any of the features of the present invention.

The Office states, "as used as described in Cedzynska et al. '691, 'Cedzynska et al. disclose a method for electrolytically loading isotopic hydrogen into a palladium or palladium-alloy electrode by alternately charging and discharging the electrode in a plurality of cycles, each cycle including charging of the electrode with isotopic hydrogen approximately to a saturation level and then discharging the electrode to a predetermined retention level see Abstract, page 9 and Fig. 1)." "

THE TRUTH - The Inventions Differ

This present invention is novel and not anticipated by the cited art, Westfall, Cedzynska and Edwards. Nowhere in Westfall, Cedzynska and Edwards, or in any combination of the Examiner's art, is any aspect of the features of '691.

The present invention, '691 involves the solid state and not plasma physics.

Even the applied magnetic field spatial homogeneity and the way the applied magnetic field is used are different.

Furthermore, in Westfall applied electric field intensities are synchronous in time, whereas in '691 they are applied metachronously (at different points in time).

Furthermore, in the present invention, additional techniques are used and features exist, unlike Cedzynska and Edwards.

Cedzynska and Edwards include none of the features of the present invention.

Edwards discloses a simple Fleischmann-Pons system with a rudimentary magnetic field "to distort electrically charged species forming during the electrolysis process at the anode or cathode to control the rate of fusion of charge atoms" (page 2, lines 15 through 18). The orientation is not given. Electrolysis is taught.

Cedzynska et al. (WO 93/01601) is a rudimentary Fleischmann-Pons system which has the modification of "alternately charging and discharging electrodes".

Attention is directed to the fact that the following elements shown in Edwards are not present, or needed, or claimed in the present invention. Edwards uses a simple Fleischmann-Pons cell, and electrolysis is taught. The magnetic field is used "to distort electrically charged species forming during the electrolysis process at the anode or cathode to control the rate of fusion of charge atoms" (page 2, lines 15 through 18). The orientation is not given. Said unneeded elements numbered in Edwards are not needed in the present invention, as described in the original specification and claims, thereby proving the present invention has significant novelty and non-obviousness. Furthermore, Swartz (SN 07/371,937, filed June 27, 1989, now SN 09/750,480) was the first to use magnetic fields to improve fusion and enhance the fusion rates. In the present invention, '691, there is used an applied magnetic field which is spatially inhomogeneous and is used to extract products based on differential magnetic susceptibilities.

If the present invention, '691, was used as described in Cedzynska, it would not even work. If the present invention, '691, was used as described in Edwards, it would not even work. If the materials and elements used in Edwards, here the simple Fleischmann-Pons cell, electrolysis sought, is taught, etc., as suggested by the examiner, were to be used in the present invention, they would not function.

This present invention has which has nothing to do with Cedzynska's Fleischmann-Pons cell and alternately charging and discharging electrodes".

This present invention has which has nothing to do with Edwards's simple Fleischmann-Pons system and rudimentary magnetic field "to distort electrically charged species forming during the electrolysis process at the anode or cathode ..." (page 2, lines 15 through 18), which the Examiner suggests.

The Office states that,

"Anyone of the cited secondary references cites the application of a magnetic field as part of a claimed electrolysis-nuclear fusion process. See for example page 2 of Westfall, abstract and claims of Sadoway, abstract of Van Noorden, and page of Dufour. One having ordinary skill in the art would have recognized the claimed advantage of applying a magnetic field to enhance a purported nuclear fusion process. As to the limitations regarding creating a gradient in the intensity of magnetic field and having an inhomogeneous magnetic field, any magnetic field applied across any material will inherently produce a gradient in the intensity of said field within the material. As to the spatial inhomogeneity of said field, as stated in section 8, any applied magnetic field will have "spatial inhomogeneity" because of inherent imperfections in the material (e.g., non-uniform crystal structure) or the source of the magnetic field (e.g., if an a.c. electrical source produces the magnetic field, any voltage fluctuations, which inherently always occur, will cause inhomogeneity in the magnetic field. Applicant's claim language reads on such."

THE TRUTH - DIFFERENT TYPES OF MAGNETIC FORCES USED

This was discussed in the previous Communication with the Examiner including on pages 40-42, and 73-74. Where is the Examiner's response? Instead, the Examiner just asks the same question without responding. Westfall does not produce charge particles but uses ions until they deposit (in neutral state) onto the surface of his electrode. In the present invention the material loads into the material and is used thereafter therein. However, for the sake of argument, in arguendo, even supposing that Westfall did, neither Cedzynska or Woolsey are even remotely like, or have the same methods of, or configuration of, or have the same purpose of, the present invention. Most importantly, the present invention separate a product but attention is directed to the fact that Cedzynska and Edwards and the other cited art use an entirely different and distinguishable principle.

Edwards demonstrate the most rudimentary of use of a rudimentary magnetic field "to distort electrically charged species forming during the electrolysis process at the anode or cathode to control the rate of fusion of charge atoms" (page 2, lines 15 through 18). Swartz (SN 07/371,937, filed June 27, 1989, now SN 09/750,480) used magnetic fields to improve fusion rates. In the present invention, '691, there is used an applied magnetic field which is spatially inhomogeneous and is used to extract products based on differential magnetic susceptibilities. This is a very different from the use of the magnetic field in Sadoway or Swartz (SN 07/371,937, now SN 09/750,480).

The most developed cited art use of magnetic fields are in Salisbury and Hirsch. They use an entirely different and distinguishable principle from the above-entitled application which involves the use of a magnetic field intensity differently from the cited art (which use a magnetic field intensity in a magnetohydrodynamic system, as is well-known, supra). By contrast, '691 teaches an extraction procedure using a spatially inhomogeneous magnetic field intensity which has forces which goes as $(\mu H) * (\mu H)$, and not $(v \times \mu H)$ as taught in Salisbury, Hirsch and the other cited art.

PUMPING ACTION BY A SPATIALLY INHOMOGENOUS MAGNETIC FIELD

As specified in the original disclosure: The pumping action upon products [other than heat] is from the action of an applied force exerted upon said product (in this case an isotope of hydrogen: tritium). The generation, and calculation, of the force induced by an applied magnetic field intensity upon the desired isotope which is generated within the CAM reactor, is derived as follows.

"An inhomogenous magnetic field intensity is applied by coil labelled 300 to one portion of the cathode (1). Said magnetic field is driven by the power supply (labelled 301) in the figure. The spatially inhomogenous magnetic field could also be created by a superconductor."

[07/760,970; the present application in Continuation; Underline added for emphasis]

Ampere's Law is used to calculate the line integral of the magnetic field intensity around the applied electric current. That magnetic field intensity exists mainly in the gap between the high permeability rod (around which the coil has been wound) and includes the volumes encompassing the desired isotope [cf. Figure 18 of the original specification].

"The differential magnetic susceptibility between isotopic fuel and the nuclear fusion product is used to magnetically pump the product to and through the barrier labelled 350. At that location there is a buildup of the isotope with the larger magnetic susceptibility due to said differential magnetic susceptibility."

[07/760,970; the present application in Continuation]

The magnetic field intensity can be derived by inspection in the gap region based upon Gauss' Law; which implies that the divergence of the magnetic flux density is zero. Therefore, the use of a volume with one surface abutting the volume containing the desired isotope and the other surface abutting the end of said rod, results in a ratio between the two magnetic fields.

The magnetic field as taught in the above-entitled application is spatially inhomogeneous. The original specification and claims of the present invention also taught and claimed a separation system to extract an precise product - another feature of great utility.

A magnetic field inhomogeneity, based upon the differential magnetic susceptibilities [cf. Swartz and Straus Declarations; A10-A21], creates forces which make this a "non-linear device in the sense that the containment field distribution is spatially non-uniform. ... the ... invention is therefore a chemical collection device."

[Straus Declaration 1994]

The magnetic force, resulting from the applied magnetic field, is the spatial derivative of the magnetic coenergy with respect to distance.

"The magnetic force resulting from the applied magnetic field is the derivative of the magnetic coenergy with respect to distance in the axial direction, and is proportional to the square of the current, the square of the number of turns in the coil (300), and said differential magnetic susceptibility. The products are removed at the product barrier (labelled 350). If said isotopic product is of lower magnetic susceptibility, then the coil is moved toward the portion of the cathode near to the solution (6)."

[07/760,970; the present application in Continuation]

As an alternative means of calculating the applied magnetic force upon the desired isotope is to use the Maxwell Stress Tensor. The Maxwell Stress Tensor is based upon the orthogonal, and parallel, components of the magnetic field intensity over the surface of the desired isotope. The stress tensor is quite complex. The calculated force is based upon the spatial divergence of the stress tensor. Both methods of deriving the magnetic force are identical

These solutions are extremely complex but an introduction to this physics in a far simpler system [as regards ferrofluids and not the more complicated invention and products of the above-entitled application] is available in "*Electromechanical Dynamics*", Part III, Elastic and Fluid Media, H. Woodson, J. Melcher, J. Wiley & Sons, Inc., NY (1968), pages 772 to 777 [cf. figures 12.2.21 and 12.2.24].

The important result, as stated in the original specification, is that energy of the entire system decreases by the movement of the higher susceptibility isotopes towards, and into, the region containing the greatest magnetic field intensity.

In summary, Westfall and Cedzynska and Edwards are different and distinguishable from applicant's claims and have none of the features of the present invention. The present invention extracts differently than Cedzynska or Edwards (*supra*) and are different and distinguishable from applicant's claims and have none of the features of the present invention. Corroborating this, attention is now directed to the fact that in when the present invention separates product by an inhomogeneous applied magnetic field intensity. Cedzynska and Edwards do not have the advanced technology, features, and advantages of the present invention.

This present invention is a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material. In the preferred embodiment, this device has two orthogonal applied electric fields with the second applied electric field intensity is delivered after full charging has been achieved. The deuteron impermeable barrier is comb-shaped labelled 55 and the cathode in the preferred configuration is divided into parallel slabs and alternate deuteron-impermeable barriers. Application of the second electric field is directed through the pairs of barriers and electrode to enhance the desired reactions. This is novel and not anticipated by the cited art. Nowhere in Edwards, Cedzynska, Westfall, or in any combination of the Examiner's cited art, is any aspect of the features of '691. Thus, the material of Applicant's invention, '691, does not read on Westfall with Cedzynska or Edwards, as the Examiner suggests, and therefore, the present application is a novel and nonobvious.

The Office states, "The following elements are known in the prior art:

"Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the Cedzynska et al. - Westfall combination, by the teaching of anyone of Edwards, Sadoway, Van Noorden or Dufour to have a magnetic field, in addition to the orthogonal electric fields, in order to gain the advantages thereof, as this is no more than the application of well-known techniques in the nuclear art."

THE TRUTH - Extraction Goes As H^*H ; Differing From Cited Art

This present invention is novel and not anticipated by the cited art, Westfall, Edwards, Sadoway, Van Noorden, or Dufour. Nowhere in Westfall, Edwards, Sadoway, Van Noorden, or Dufour or in any combination of the Examiner's art, is any aspect of the features of '691.

Edwards, Sadoway, Van Noorden, or Dufour include none of the features of the present invention. Edwards, Sadoway, Van Noorden, or Dufour demonstrate the most rudimentary of use of a magnetic field, which is entirely different and distinguishable principle from the above-entitled application.

By contrast, the present invention, '691 involves the solid state and not plasma physics.

Furthermore, in the present invention, additional techniques are used and features exist, unlike Edwards, Sadoway, Van Noorden, or Dufour.

Even the way the magnetic fields used are different. '691 teaches an extraction procedure using an inhomogeneous magnetic field intensity which has forces which goes as $(\mu H) * (\mu H)$, and not $(v \times \mu H)$.

Edwards (WO 90/15416) is a simple Fleischmann-Pons system with a rudimentary magnetic field *"to distort electrically charged species forming during the electrolysis process at the anode or cathode to control the rate of fusion of charge atoms"* (page 2, lines 15 through 18).

Sadoway (WO 91/06959) is a simple Fleischmann-Pons system with an applied magnetic field to *"enhance fusion initiation"* [Page 6, line 13].

Van Noorden (NL 8909-962-A) is invention for a simple Pons and Fleischmann system used to generate neutrons. Van Noorden uses a very homogeneous magnetic field through means of *"an electric coil in which the electrolysis cell is mounted"*. It is constant therein. There is no extraction. There is no planned applied inhomogeneity.

Dufour (WO 91/01036) is a simple Fleischmann-Pons apparatus, with a voltage source with a *"pulse operating range of 10 hertz to 1 MHz"* (page 10).

Attention is directed to the fact that the following elements shown in Edwards (WO 90/15416), magnetic field *"to distort electrically charged species forming during the electrolysis process at the anode or cathode to control the rate of fusion of charge atoms"* (page 2, lines 15 through 18), electrolysis sought, are not needed in the present invention, thereby proving the present invention has significant novelty and non-obviousness.

Attention is directed to the fact that the following elements shown in Van Noorden (NL 8909-962-A) generator of neutrons, very homogeneous magnetic field, are not needed in the present invention, thereby proving the present invention has significant novelty and non-obviousness.

Attention is directed to the fact that the following elements shown in Dufour (WO 91/01036), a voltage source with a "pulse operating range of 10 hertz to 1 MHz" (page 10), are not needed in the present invention, thereby proving the present invention has significant novelty and non-obviousness.

If the present invention, '691, was used as described in Edwards, it would not even work. If the materials and elements used in Edwards, here the simple Fleischmann-Pons system with a rudimentary magnetic field *"to distort electrically charged species forming during the electrolysis process at the anode or cathode to control the rate of fusion of charge atoms"* (page 2, lines 15 through 18), etc., as suggested by the examiner, were to be used in the present invention, they would not function. This present invention has which has nothing to do with Edwards' simple Fleischmann-Pons cell or magnetic field *"to distort electrically charged species forming during the electrolysis ..."* (page 2, lines 15 through 18).

If the present invention, '691, was used as described in Sadoway, it would not even work. If the materials and elements used in Sadoway, here the simple Fleischmann-Pons system with a rudimentary magnetic field to *"enhance fusion initiation"* [Page 6, line 13], etc., as suggested by the examiner, were to be used in the present invention, they would not function. This present invention has which has nothing to do with Sadoway's simple Fleischmann-Pons cell or magnetic field to *"enhance fusion initiation"* [Page 6, line 13].

If the present invention, '691, was used as described in Van Noorden, it would not even work. If the materials and elements used in Van Noorden, here the simple Fleischmann-Pons system with neutron subsystem, very homogeneous magnetic field through means of *"an electric coil in which the electrolysis cell is mounted"*, and with no extraction, etc., as suggested by the examiner, were to be used in the present invention, they would not function. This present invention has which has nothing to do with Van Noorden's simple Fleischmann-Pons cell, neutron subsystem, very homogeneous magnetic field, and lack of extraction.

If the present invention, '691, was used as described in Dufour, it would not even work. If the materials and elements used in Dufour, here the simple Fleischmann-Pons system with a voltage source with a "pulse operating range of 10 hertz to 1 MHz" (page 10), etc., as suggested by the examiner, were to be used in the present invention, they would not function. This present invention has which has nothing to do with Dufour's simple Fleischmann-Pons cell or with a voltage source with a "pulse operating range of 10 hertz to 1 MHz" (page 10).

Attention is directed to the fact that the following elements shown in Edwards (WO 90/15416), magnetic field "to distort electrically charged species forming during the electrolysis process at the anode or cathode to control the rate of fusion of charge atoms" (page 2, lines 15 through 18), electrolysis sought, are not needed in the present invention, thereby proving the present invention has significant novelty and non-obviousness.

Attention is directed to the fact that the following elements shown in Van Noorden (NL 8909-962-A) generator of neutrons, very homogeneous magnetic field, are not needed in the present invention, thereby proving the present invention has significant novelty and non-obviousness.

Attention is directed to the fact that the following elements shown in Dufour (WO 91/01036), a voltage source with a "pulse operating range of 10 hertz to 1 MHz" (page 10), are not needed in the present invention, thereby proving the present invention has significant novelty and non-obviousness.

The original specification teaches (page 4, line 26 through page 5, line 3), the best mode contemplated by the inventor of carrying out his invention

"...label 1 represents the metallic cathode, usually palladium in the preferred configuration. ... The label 7 represents the anode which in the preferred embodiment is composed of palladium. The label 6 represents the solution consisting in the preferred embodiment of a gel containing antidesiccant, in combination with LiOD, palladium salts, and heavy water (D2O)."

Where are these in the cited references?

The original specification teaches (page 5, lines 14-22), the best mode contemplated by the inventor of carrying out his invention using the first applied electric field intensity (referring to the figures).

"Figure 2 is a crosssectional drawing (t)his device has two orthogonal applied electric fields. The first (labelled E-field number 1 in the the figure) is that which is applied to charge the palladium with deuterons."

The original specification continues (page 5, lines 17-22) with the best mode contemplated by the inventor of carrying out his invention using the second applied electric field intensity.

"The second applied electric field intensity is delivered after full charging has been achieved. In the figure the anode and cathode are labelled as 7 and 1. The

electrolyte solution or gel is labelled as 6. The connections for the first electric field are labelled as 81 and 82. The connections for the second electric field are labelled as 85 and 86. The mechanical casing is labelled 20."

Where are these in the cited references?

The original specification teaches (page 5, lines 23-25) the best mode contemplated by the inventor of carrying out his invention with respect to the impermeable barrier (referring to the figures).

"The deuteron impermeable barrier is comb-shaped in this preferred configuration, and is labelled 55 in figure 13."

The original specification teaches (page 6, lines 1-5) and elaborates for those skilled in the art to make and use the subject matter defined by each of the rejected claims.

"The cathode in this preferred configuration is divided into parallel slabs. Between these slabs alternate deuteron-impermeable barriers. Application of the second electric field causes the deuterons already loaded in the cathode to redistribute, but the deuteron-impermeable barrier(s) act to enhance the desired reactions."

Where is this in the cited references?

As the original specification teaches (page 6, lines 7-13), the best mode contemplated by the inventor of carrying out his invention

"Each device is equipped with orthogonal applied electric fields. The second applied electric field intensity is delivered after full charging. These devices each contain a cathode (labelled 1), intradevice gel containing lithium and palladium deuterioxide (labelled 6), and anode (labelled 7)."

The original specification teaches (page 7, lines 1-4), the best mode contemplated by the inventor of carrying out his invention

"The result is the piling up of deuterium at the deuteron-impermeable barriers (labeled 55). The heat energy is directed out via the the heat pipes and the thermal bus."

Where are these in the cited references?

In one embodiment, as the original specification continues, detailed instructions are taught for producing the desired result (page 6, lines 15-24),

"These CAM devices are inserted, similar to a fuse onto a holding board, held in place by clips ... The three CAM device are connected to a microprocessor control system... Said apparatus has an electrical bus to connect the anodes which are connected to the anodic connectors (labelled 82). Said apparatus has an electrical bus to connect the cathodes ... The cathodic system buses (106 and 107) are electrically shorted together during the deuterium charging."

Where are these in the cited references?

Each of these features, and those of the original specification of which this is the divisional, is novel and not obvious. The original specification describes the subject matter defined by each of the rejected claims, and enables any person skilled in the art to make and use the subject matter defined by each of the rejected claims, and sets forth the best mode contemplated by the inventor of carrying out his invention. The operability and usefulness (that is, enablement) of the original specification was demonstrated to be correct at the time of the original filing in Fusion Technology (of the American Nuclear Society) and elsewhere which demonstrate operability and utility [validation]. These include, but are not limited to, the following: Swartz (1998), Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85, Swartz. (1997), Fusion Technology, 31, 63-74.

In summary, Westfall, Edwards, Sadoway, Van Noorden, and Dufour are different and distinguishable from applicant's claims and have none of the features of the present invention which is a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material.

When extraction is used, the present invention extracts differently than Edwards, Sadoway, Van Noorden, or Dufour (*supra*). With MHD (the cited art) the separation is outside of the site of the reactions, which is quite different from the present application where an inhomogeneous applied magnetic field intensity is used within the system to extract product.

This present invention is novel and not anticipated by the cited art. Nowhere in the Examiner's cited art, is any aspect of the features of '691. Thus, the material of Applicant's invention, '691, does not read on Edwards, Sadoway, Van Noorden, or Dufour, as the Examiner suggests, and therefore, the present application is a novel and nonobvious.

With respect to evaluation of claims under 35 U.S.C. 103, 'every portion of the ... claims must be considered in determining ... obviousness' [emphasis added; In re Duva, 156 USPQ 90, 94 (CCPA 1967)]. The Court, in reversing the Office in In re Kuderna and Phillips, 165 USPQ 575, 578- (CCPA 1970), referred to the 'sum of the relevant teaching in the art, ' pointing out that the Office is not allowed to 'view ... first one and then another of isolated teachings' when determining that 'the subject matter as a whole would have been obvious at the time the invention was made', as required by 35 U.S.C. 103. Particularly pertinent is In re Shuman and Meinhardt, 150 USPQ 54, 57 (CCPA 1966) wherein the court said:

'References are evaluated by ascertaining the facts fairly disclosed therein as a whole. It is impermissible to first ascertain It is factually what appellants did and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and the utilized to reconstruct appellant's invention from such prior art. [Emphasis added.]

It is basic that the claims define the invention. The courts have said that:

'All words in a claim must be considered in judging the patentability of that claim against the prior art ... ', In re Wilson, 165 USPQ 494 (CCPA 1970). The terms in the claims 'should be given the meaning they would have 'to one of ordinary skill in the pertinent art when read in the light of and consistently with the specification ...', In re Benson and Tabbott, 169 USPQ 548, 552 (CCPA 1971).

The Court of Custom and Patent Appeals in In re Langer and Haynes, 175 USPQ 169, 171 (CCPA 1972) and as to a rejection based upon prior art teachings, said:

'This court has said that '(a)ll of the disclosures in a reference must be evaluated for what they fairly teach (emphasis added) one of the ordinary skill in the art.'

Where is the method of the claims taught in the references? How were all portions of the claims considered in determining obviousness? Does Westfall, Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour act as a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material, as the Examiner purports? No.

Does Westfall, Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour extract product using an inhomogeneous magnetic field intensity which has forces which go as $(\mu H) * (\mu H)$ as the Examiner purports? No.

The figures and claims of Westfall, Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour are intended to, and do, serve a different purpose than does the figures and Claims 1, 5 through 8, 10 through 14, and 21 through 30 in the present invention, and Edwards, Sadoway, Van Noorden, or Dufour adds nothing of substance to Westfall.

None of the references to which the Examiner refers are concerned with this application's novel means to a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material, followed by extraction of product using an inhomogeneous magnetic field intensity which has forces proportional to $(\mu H) * (\mu H)$.

None of the references suggests, alludes to, or teaches a structure as defined by the Claims 1, 5 through 8, 10 through 14, and 21 through 30 of this invention of Figure 2, therein.

Unsuggested Combination:

There is no suggestion in the references themselves that they be combined, or could be combined.

Where was the suggestion of the desirability of the modification? Indeed, neither of the references suggests, alludes to, or teaches a structure as defined by the claims of this invention, and as should be apparent?

The need for the prior art references themselves to suggest that they can be combined is well known. Therefore, of what relevance then is Westfall, Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour?

On the matter of applying references to claimed subject matter [eg. cf. *In re Mercier*, 185 U.S.P.Q. 774, (CCPA, 1975)]:

'These and other questions arise because the board's approach fails to recognize that all of the relevant teachings of the cited references must be considered in determining what they fairly teach to one having ordinary skill in the art. * * * 'The relevant portions of a reference include not only those teachings which would suggest particular aspects of an invention to one having ordinary skill in the art, but also those teachings which would lead such a person away from the cited invention.'

As was stated in *In re Sernaker*, 217 U.S.P.Q. 1,6 (CAPC 1983)]:

'(P)rior art references in combination do not make an invention obvious unless something in the prior art references would suggest that advantage to be derived from combining their teachings.'

The suggestion to combine the references should come from the prior art, rather than from applicant. As was forcefully stated in *Orthopedic Equipment Co. Inc. v. United States*, 217 U.S.P.W. 193, 199 (CAPC 1983):

'It is wrong to use the patent in suit [here the patent application] as a guide through the maze of prior art references, combining the right references in the right way to achieve the result of the claims in suit [here the claims at issue]. Monday morning quarterbacking is quite improper when responding the question of nonobviousness in a court of law [here the Office].'

Indeed, what the Office has done here is to

'pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art'

[*In re Umbrecht*, 160 USPQ 15, 19 (CCPA 1968)].

There is no teaching in the references that would support the combination the Office uses to reject the claims. The applicable law will now be noted in greater detail.

NOTA BENE: The Examiner is incorrect. In order to combine references there must be a 'suggestion of the desirability' of the combination, *In re Noznik, Tatter and Obenauf*, 178 USPQ 43, 45 (CCPA 1973). That holding is the reason why the origin of the combination must be given weight -- not only the possibility of such combination; see the reference to 'motivation or reason in *Chicago Rawhide* {**} which focuses quite clearly on the rationale of recent decisions of the Court of Appeals for the Federal Circuit (CAFC) on the issue of obviousness, as discussed, for example, in *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), wherein the court said at page 1127:

'The mere fact that the prior art could be so modified should not have made the modification obvious unless the prior art suggested the desirability of the modification. [Emphasis added]

[{**} *Ex parte Chicago Rawhide Manufacturing Co.*, 223 USPQ 351, 353 (Bd. of App. 1984)]

There would be no reason for one skilled in the art to combine such disparate references such as Westfall, Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour to purportedly obtain the present invention as the Examiner has done. Furthermore, there is no suggestion in the references themselves that they be combined, or could be combined that way. Thus the applicant submits that any combination of Westfall with Westfall, Edwards, Sadoway, Van Noorden, or Dufour is an improper one, absent any showing in the references themselves that they can or should be so combined.

In the present case, the rejection of certain claims uses the Westfall patent [which is related to electroplating] located far afield from Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour which are in the fields of cold and hot fusion. The applicant submits that any combination of them is an improper one, absent any showing in the references themselves that they can or should be so combined.

Where was the suggestion of the desirability of the modification? Indeed, what the Office has done here is to 'pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art', In re Umbrecht, 160 USPQ 15, 19 (CCPA 1968). There is no teaching in the references that would support the combination the Office uses to reject Claims 1, 5 through 8, 10 through 14, and 21 through 30, as should be apparent to the Office.

Thus the applicant submits that any combination of Westfall with Edwards, Sadoway, Van Noorden, or Dufour or the other art is an improper one, absent any showing in the references themselves that they can or should be so combined.

None of the references suggests, alludes to, or teaches the structure as defined by Claims 1, 5 through 8, 10 through 14, and 21 through 30. As said in Ex parte Fleischmann, 157 USPQ 155, 156) Bd. of Appeals 1967):

'While as an abstract proposition it might be possible to select features from the secondary references, as the examiner has done, and mechanically combine them with the (other citation) to arrive at appellant's claimed combination, we find absolutely no basis for making such combination neither disclosed nor suggested in the patents relied on.'

On the matter of combining references under section 103, no better expression of the law is found then that in Higley v. Brenner, Cmr. Pats., 155 USPQ 481, 484 (CADC 1967):

'The obviousness question here revolves around the Patent Office's combining prior references. Reliance may properly be placed on such a combination to negative patentability where the applicant's subject matter is suggested or 'taught' by the prior references. Application of Van Deventer, 223 F.2d 274, 276 106 USPQ 121, 123 (CCPA 1955); Application of Demarche, 219 F.2d 952, 956, 105 USPQ 65, 69 (CCPA 1955).'

'The test of obviousness, however, must be applied as of the time of the invention and not retrospectively as of the time of the suit. Many things may seem obvious after they have been made and for this reason courts should guard against slipping into the use of hindsight'.

Attention is directed to the fact that both Edwards, Sadoway, Van Noorden, or Dufour involve use of a magnetic field using the Lorentz force with the cross-product force ($v \times \mu H$). By contrast, the present invention uses a different group of materials, for a different group of functions, and a different final result. Thus, the present invention is not involved in using the Lorentz force, but teaches an extraction procedure using an inhomogeneous magnetic field intensity which has forces which goes as $(\mu H) * (\mu H)$, and not $(v \times \mu H)$ as taught in Edwards, Sadoway, Van Noorden, or Dufour. Simply put, the present invention does not use magnetohydrodynamic systems to produce electric energy directly from a nuclear fusion device involving a liquid lithium as taught in Lasche and Wooley. The Examiner's use of Westfall and Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour is improper.

The materials used in Westfall, Edwards, Sadoway, Van Noorden, or Dufour do not function as the active material used in the present invention. Furthermore, the use of liquid lithium, solid lithium, liquid metal blankets and plasmas in Lasche and Wooley, are quite different from the present invention.

Simply put, the figures and claims of Westfall, Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour are intended to, and do, serve a different purpose than does the structure defined by claims herein, and Edwards, Sadoway, Van Noorden, or Dufour add nothing of substance to Westfall. Thus the applicant submits that any combination of Westfall with Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour is an improper one, absent any showing in the references themselves that they can or should be so combined.

If either Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour were used in the present invention, or placed in any way into the present invention, the combination would not function. The Examiner's use of Westfall and Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour is improper.

The Examiner's connecting Westfall and either Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour is improper.

Furthermore, how were all portions of the claims considered in determining obviousness?

As is saliently clear, there has not been a fair standard of review.

The suggestion to combine the references should come from the prior art, rather than from Examiner. In the present case, the rejection of claims under 35 U.S.C. 103(a) uses the Westfall patent [which is related to producing heat from loaded palladium using the simple technique of F+P modified by a surface layer and is not the present invention which involves a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material.

The Examiner has rejected the claims on the basis of 'random facts' in the art cited and has modified those random facts in a manner without 'motivation or reason' derived from those random facts [Chicago-Rawhide]. However, even picking and choosing bits and pieces of the various references as the Office has done here, does not lead one to the invention as defined by Claims 1, 5 through 8, 10 through 14, and 21 through 30.

ADDITIONAL REASON OVERCOMING THE EXAMINER'S POSITION REGARDING USC 103

The Cited but Non-Applied References

The cited but not applied references have been studied but are submitted to be less relevant than the relied upon references.

ADDITIONAL REASON OVERCOMING THE EXAMINER'S POSITION REGARDING USC 103

Additional Reasons Militate In Favor of Unobviousness

The applicant respectfully notes to the examiner that there exist additional reasons which militate in favor of unobviousness.

Unexpected Results: Up to now, insofar as the applicant is aware, the prior art cited by the examiner has virtually ignored how to activate isotopic fuel, which is loaded into a material. The device described within the above-entitled application and thus both superior, unsuggested, and unobvious.

ADDITIONAL REASON OVERCOMING THE EXAMINER'S POSITION REGARDING USC 103

== Additional Reasons Militate In Favor of Unobviousness ==

Assumed Insolubility. Up to now, many skilled in the art have thought, or have found, that both obtaining fusion of this type, and the specific problem solved by this invention, were insoluble. The failures of much prior art, including but not limited to those cited by the examiner, indicates that a solution of these problems was, therefore, not obvious. This general lack of an obvious solution is discussed in the above-entitled application.

In summary, the cited references cannot be combined in the manner suggested and the claimed features of the invention described in the above-entitled application are lacking in the cited references. The present invention is distinct from the prior art and other art. None of the references shows a method which includes in combination supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material as taught in the above-entitled patent application. Applicant submits that the above-recited novel features in the independent claims, and hence in all claims, provide new and unexpected results and hence should be considered unobvious, making the claims patentable under Section 103.

The Appellant has explained in detail (supra) how the cited art are different and therefore produce a different result from the present invention. Applicant has given lists of additional critical features and components which distinguish Applicant's invention to operatively function in a different manner to the cited art. Therefore, in accordance with the foregoing arguments, Applicant has fully conformed with the requirements of section 103 of the Patent Act; and further, that Claims 1, 5 through 8, 10 through 14, and 21 through 30 of the present invention clearly define patentable subject matter. These claims are patentable over the cited references because the claims recite novel structure and thus are distinguished physically over every reference [Sec. 102], and the physical distinctions effect new and unexpected results, thereby indicating that the physical distinction is simply not obvious [Sec. 103]. Given the above, reconsideration of the rejection of claims is respectfully requested.

Rejection Other Than Those Referred To In Paragraphs (c)(8)(i) to (iv)

The Appellant hereby does fully and completely specify two groups of errors, other than those referred to in paragraphs (c)(8)(i) to (iv), which cause the rejection to be in error.

ARGUMENT - Claim Rejections under 35 USC 101 REJECTION

All Claims are rejected under 35 U.S.C. 101 by the Examiner, based upon flawed reference to other art ("FP" or "F+P") and by what appears to be the Examiner's ignoring said submitted Declarations of fact and accompanying Exhibits. The appealed claims do not stand or fall together. Claims 1, 10, and 21 are separately patentable and do not stand or fall together because they are materially distinct with respect to 35 USC 101. Claims 1, 10, and 21 are separately patentable because they are not unduly multiplied, have separate limitations, and are required because the invention described by the original specification of the above-entitled application is very complex.

The invention at issue in this case, '691, claimed by Claims 1, 5-8, 10-14, 21-30, is generally speaking a method to control hydrogen loaded into a metal such as palladium. Such loading by hydrogen occurs much as a sponge fills (loads) with water. This invention uses the hydrogen as a fuel, and for each device usually one isotope of hydrogen (protium or deuterium) is chosen (loaded into nickel or palladium, respectively).

The invention is a method to control the production of the desired products (such as heat) which includes in combination loading the hydrogen using a first applied electric field, and then at a later point in time applying a second electric field to redistribute said isotopic fuel within said material, with means to obstruct the flow of the loaded hydrogen.

The original specification states (page 1, lines 7-8) this subject matter is a method of great utility

"to control reactions involving isotopic fuels within a material, such as hydrogen within palladium."

As the original specification states (page 3, lines 4-14), the present invention is quite useful to those skilled in the art because present typical methods of loading have

"... problems. First, the desired reactions are not well controlled. The proven difficulties of loading, the slow initiation of the desired reactions, and the difficulty in controlling the reactions has limited research and development of

this technology. Second, prior to the desired reactions, the cathodes must be filled with deuterons to concentrations which require significant times of charging. Third, palladium, the preferred metal of these reactions, is expensive. Fourth, the rates of the desired reactions are very low in the steady state."

In addition, the present invention, is useful, because it will enable any person skilled in the art to make and use the subject matter defined by each of the rejected claims (original specification states (page 3, lines 17-22) so as to

'to control and enhance desired reactions. ... minimize the required quantity of expensive palladium used ... (and) maximize the local quantity of the hydrogen within the palladium."

The original specification teaches (page 4, line 26 through page 5, line 3), the best mode contemplated by the inventor of carrying out his invention

"...label 1 represents the metallic cathode, usually palladium in the preferred configuration. ... The label 7 represents the anode which in the preferred embodiment is composed of palladium. The label 6 represents the solution consisting in the preferred embodiment of a gel containing antidesiccant, in combination with LiOD, palladium salts, and heavy water (D₂O). "

The original specification teaches (page 5, lines 14-17), the best mode contemplated by the inventor of carrying out his invention using the first applied electric field intensity (referring to the figures).

"Figure 2 is a crosssectional drawing (t)his device has two orthogonal applied electric fields. The first (labelled E-field number 1 in the the figure) is that which is applied to charge the palladium with deuterons."

The original specification continues (page 5, lines 17-22) with the best mode contemplated by the inventor of carrying out his invention using the second applied electric field intensity.

"The second applied electric field intensity is delivered after full charging has been achieved. In the figure the anode and cathode are labelled as 7 and 1. The electrolyte solution or gel is labelled as 6. The connections for the first electric field are labelled as 81 and 82. The connections for the second electric field are labelled as 85 and 86. The mechanical casing is labelled 20."

The original specification teaches (page 6, lines 1-13) subject matter of great utility.

"The cathode in this preferred configuration is divided into parallel slabs. Between these slabs alternate deuteron-impermeable barriers. Application of the second electric field causes the deuterons already loaded in the cathode to redistribute, but the deuteron-impermeable barrier(s) act to enhance the desired reactions."

"Each device is equipped with orthogonal applied electric fields. The second applied electric field intensity is delivered after full charging. These devices each contain a cathode (labelled 1), intradevice gel containing lithium and palladium deuterioxide (labelled 6), and anode (labelled 7)."

In one embodiment, as the original specification continues, detailed instructions are taught -- features of great utility (page 6, lines 15-28),

"These CAM devices are inserted, similar to a fuse onto a holding board, held in place by clips ... The three CAM device are connected to a microprocessor control system... Said apparatus has an electrical bus to connect the anodes which are connected to the anodic connectors (labelled 82). Said apparatus has an electrical bus to connect the cathodes ... The cathodic system buses (106 and 107) are electrically shorted together during the deuterium charging."

"Said apparatus has a thermal bus connected to the heat pipes which are held in a mechanical connecting system (labelled 20)."

Each of these features, and those of the original specification of which this is the divisional has obvious great utility. The original specification describes the subject matter defined by each of the rejected claims, and enables any person skilled in the art to make and use the subject matter defined by each of the rejected claims, and sets forth the best mode contemplated by the inventor of carrying out his invention. The usefulness of the original specification was demonstrated to be correct at the time of the original filing in Fusion Technology (of the American Nuclear Society) and elsewhere which demonstrate operability and utility [validation]. These include, but are not limited to, the following: Swartz (1998), Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn. 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85, Swartz. (1997), Fusion Technology, 31, 63-74.

The Office states,

"Claims 1, 10, 11, 21, 22, and 24-30 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility".

THE TRUTH - Affiants' Statements are Fact and Support Utility

The Examiner's Response is non-responsive to the submitted Declarations and *Amicus Curiae* Briefs which remain unrebutted and which corroborate both the "utility" of these teachings. In this case, as in S/N 07/760,970 and Federal Appeals Court 00-1108, the Office is disingenuous because the Office has ignored the many Declarants who affirm utility. Said affiants prove utility. It is a fact, apparently ignored and disliked by a hostile element within the US Patent Office which is determined to keep alternative energy from the United States, but it is a fact nonetheless which rebuts the erroneous opinion of the Office.

For example, the Examiner's Response is non-responsive to the Rotegard Declaration:

"If only a few labs had reported success, then skepticism of cold fusion would be viable. Several research teams reported positive finding on the original Fleischmann Pons effect at the Fourth International Conference on Cold Fusion

in December 1993. I submit that Occams razor would dictate that the phenomena is real and has been "reproduced" to the point of overkill.

"Major research institutions, industrial corporations and established scientific journals of international repute have endorsed the reality of cold fusion and are acting to explore and benefit from this reality. *** These trends would lead a prudent person to conclude that there is substance to the research cited above. Therefore, developments and inventions in this area have great utility."

[Declaration of Dana R. Rotegard, 1994]

As another example, the Examiner's Response is non-responsive to the fact that Dr. McKubre stated:

"For me, the best heat report, and perhaps the best report at this conference, was that of Mitch Swartz. ... I have not been able to perform the experiments myself, successfully, and I have always felt that the quality of the calorimetric observations in the nickel light water studies has been less than the quality of the calorimetric observations in the palladium-deuterium system. ... Mitch Swartz presented a very clear piece of calorimetric evidence which is certainly going to cause me to reconsider my belief and understanding of the nickel-light water system and its capacity to produce anomalous heat"

[Dr. Michael McKubre, SRI, Infinite Energy, 4, 20, pp.34-35, (1998)]

As another example, the Examiner's Response is non-responsive to the fact that Dr. Michael Schaffer (A55, 8/7/01) said,

"I do not see how anyone could construe anything that I wrote at Scientific American's site to imply that there is "no utility" in cold fusion, much less in instruments that might be used in cold fusion and other scientific experiments. ... As an expert ... I would agree [Dr. Swartz's invention] ... does have utility".

The Examiner's Response is also non-responsive to the fact that Dr. Rehn, U.S. Navy, said

"Perhaps the clearest scientific fact, at this time, is the hardest for physicists to accept: nuclear reactions apparently do occur in deuterium-loaded Pd, Ti, and probably in other solids."

[Office of Naval Research Asian Office, NAVSO P-3580, Vol. 18, Jan. 1993].

This confirms that Dr. Will, another Office witness, said,

"Significant positive results have been obtained (by) 100 groups from more than 12 countries"

[Final Report NCFI (1991)].

The Examiner's Response is non-responsive to the fact that controlled nuclear fusion offers the possibility of an inexpensive source of energy for the United States and is of great utility. The original specification has explicitly indicated why there is great utility of both the field and the present invention. Energy needs dominate both the economy and welfare of humanity as has been shown historically. Therefore, this technology has great utility to society.

The Examiner's Response is non-responsive to the fact that he is incorrect and substantively contradicted Drs. Chubb, Fox, Mallove, McKubre, and by the Office's own previous witnesses, Dr. Rehn and Dr. Will. This is important because proof of utility should be judged either by those using the invention or those skilled in the art. Corroborating this, validation occurs when scientists actually skilled, and working, in the state-of-the-art state it to be so. These scientists who write the current scientific technical papers which undergo peer-review, file patent applications, and attend international conferences (which have gone on for thirteen years) and they absolutely disagree with the Examiner.

The Examiner's Response is non-responsive to the fact that utility is a fact question, and proof of utility is sufficient if it is convincing to one of ordinary skill in the art or if it meets at least one stated objective. Here it does. Unrebutted Declarations have been submitted in this case, and are again submitted, and the Examiner must respond to them substantively [*Marino v. Hyatt Corporation*; *Morrill v. Tong*; and *Chelebda v. H.E. Fortuna & Brothers Inc.*]. Furthermore, the Examiner has rejected *Marino v. Hyatt Corporation*, 793 F.2d 427, 430 (1st Cir. 1986); *Morrill v. Tong*, 390 Mass. 1207 129 (1983); *Chelebda v. H.E. Fortuna & Brothers Inc.* 609 F.2d 1022 (1st Cir. 1979); *Lewis v. Bours*, 119 Wn.2d 667, 670, 1992] which require the Examiner to assume that the Declarants' assertions are true. The Declarations demonstrate that the original specification and claims clearly define subject matter of considerable utility. Therefore, the Applicant has fully conformed with, and satisfied, the requirements of §101 of the Patent Act and met at least one (1) stated objective [*Standard Oil Co. (Indiana) v. Montedison, S.P.A.*, 664 F.2d 356, 375, 212 USPQ 327, 344 (3rd Cir. 1981), cert. denied, 456 U.S. 915, 102 S.Ct. 1769, 72 L.Ed.2d 174 (1982); *E.I. du Pont de Nemours & Co. v. Berkley & Co.*, 620 F.2d 1247, 1258 n.10, 1260 n.17, 205 USPQ 1, 8n10, 10n.17 (8th Cir. 1980); *Krantz and Croix v. Olin*, 148 USPQ 659, 661-62 (CCPA 1966); *Chisum on Patents*, 4.04[4] [1983]; *RAYTHEON COMPANY v. ROPER CORPORATION*, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592].

The Examiner has not followed the standards of review. The Office's own rule [M.P.E.P. §2111.01] requires that "the words of a claim ... must be read as they would be interpreted by those of ordinary skill in the art". In this case, given the averments of so many, utility under USC 101 is clearly shown.

"Utility is a fact question, see e.g., *Wilden Pump v. Pressed & Welded Products Co.*, 655 F.2d 984, 988, 213 USPQ 282, 285 (9th Cir. 1981); *Nickola v. Peterson*, 580 F.2d 898, 911, 198 USPQ 385, 399 (6th Cir. 1978), cert. denied, 440 U.S. 961, 99 S.Ct. 1504, 59 L.Ed.2d 774 (1979)." [*RAYTHEON COMPANY v. ROPER CORPORATION*, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592]]

"When a properly claimed invention meets at least one stated objective, utility under 101 is clearly shown. See e.g., *Standard Oil Co. (Indiana) v. Montedison, S.P.A.*, 664 F.2d 356, 375, 212 USPQ 327, 344 (3rd Cir. 1981), cert. denied, 456 U.S. 915, 102 S.Ct. 1769, 72 L.Ed.2d 174 (1982); *E.I. du Pont de Nemours & Co. v. Berkley & Co.*, 620 F.2d 1247, 1258 n. 10, 1260 n. 17, 205 USPQ 1, 8 n. 10, 10 n. 17 (8th Cir.1980); *Krantz and Croix v. Olin*, 148 USPQ 659, 661-62 (CCPA 1966); *Chisum on Patents*, 4.04[4] [1983]." [RAYTHEON COMPANY v. ROPER CORPORATION, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592]]

"Proof of utility is sufficient if it is convincing to one of ordinary skill in the art. In *re Irons*, 52 CCPA 938, 340 F.2d 974, 144 USPQ 351 (1965). The amount of evidence required depends on the facts of each individual case. In *re Gazave*, 54 CCPA 1524, 379 F.2d 973, 154 USPQ 92 (1967). The character and amount of evidence needed may vary, depending on whether the alleged utility appears to accord with or to contravene established scientific principles and beliefs. In *re Chilowsky*, 43 CCPA 775, 229 F.2d 457, 108 USPQ 321 (1956)."

[In *Re Jolles*, U.S.C.P.A., 1980, 628 F.2d 1322, 206 USPQ 885]

The Examiner Mistakes a Question of Fact for a Question of Law

The Examiner's Response is non-responsive to the fact that the Examiner dismisses the affiants discussing Applicant's inventions as opinion. However, Declarants' statements and the peer-reviewed publications are Fact. The Examiner has mistaken a question of fact for a question of law. The Examiner cannot dismiss Declarations improperly to "opinion"-status without an adequate explanation of how the Declarations failed to overcome the prima facie case initially established by the Examiner. The Examiner has rejected *In re Alton* which requires that even the use of the words "it is my opinion" to preface what someone of ordinary skill in the art knows does not transform the factual statements contained in the declaration into opinion testimony. Exactly how many Declarants does it take to overcome the Examiner's unsubstantiated rejection?

The Examiner's Response is non-responsive to the fact that the Examiner has ignored the directive of 1.131 (a)(1) which requires that

"When ... a patent ... is rejected on reference ... to a printed publication, the inventor of the subject matter of the rejected claim ... may submit an appropriate oath or declaration to overcome the patent or publication."

The Examiner's Response is non-responsive to the fact that the Examiner has changed the standards of review.

The Examiner has rejected *In re Zurko* [142 F.3d 1447, 1449, 46 USPQ2d 1691, 1693 (Fed. Cir.), cert. granted, 119 S. Ct. 401 (1998)] which declares that utility is a fact question [*Raytheon Company V. Roper Corporation*, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592], and one which the Examiner in this case must review for clear error [*Cross v. Iizuka*, 753 F.2d 1040, 1044 n.7, 224 USPQ 739, 742 n.7 (Fed. Cir. 1985); also *In re Zurko*].

In re Irons indicates that utility is a fact question [*Raytheon Company V. Roper Corporation*]. The submitted Declarations and the publications (including e.g. McKubre) are relevant as proof of utility. They demonstrate utility and operability at the time of the filing of this patent, and that it was, and is, important and of considerable utility.

The Examiner has rejected *In re Ziegler* [992 F.2d 1197, 1200, 26 USPQ2d 1600, 1603 (Fed. Cir. 1993)] which requires the Examiner accept Declarations as factual proof of utility.

The Examiner has rejected *In re Ferens* [417 F.2d 1072, 1074, 163 USPQ 609, 611 (CCPA 1969)] which heralds that Applicant's submitted evidence, including Declarations, is sufficient.

The Examiner has rejected *Ex parte Porter* which requires that Declarations, submitted in response to the Examiner's comments, must be read, examined, and carefully considered.

The Examiner has rejected *In re Morris* [127 F.3d 1048, 1053-56, 44 USPQ2d 1023, 1027-30 (Fed. Cir. 1997)] which demands that the interpretation of operability and utility is predicated upon that which one who is skilled-in-the-art would reach. The Examiner must give the claims their broadest reasonable interpretation consistent with that which those skilled-in-the-art would reach.

The Examiner has rejected *In re Oetiker* [977 F.2d at 1445, 24 USPQ2d at 1444] which requires the Examiner substantively and fully respond to the probative witnesses, because Applicant has undertaken the full burden coming forward.

The Examiner has rejected *Ex parte Gray* [10 USPQ2d 1922, 1928 (Bd. Pat. App. & Inter. 1989)] which allows for Applicant's submitted expert testimony regarding operability and utility, beyond the detailed specification. The Examiner must give substantial weight to said Declarations about what they said about this invention compared to the Examiner's art regarding the work of others.

The Examiner has rejected In re Brana, 51 F.3d at 1566, 34 USPQ2d at 1441] which indicates Applicant's actions hereby meet the "burden shift ... to provide rebuttal evidence sufficient to convince such a person of the invention's asserted utility".

The Examiner has rejected In re Marzocchi and In re Oetiker which require responsive argument to the fully addressed criticism against the Examiner's unfounded notions. In re Marzocchi, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971)] declares that the Examiner cannot make the rejection he has unless he has reason to doubt the objective truth of the statements contained in the written description, here corroborated and supported by multiple Declarations.

ADDITIONAL REASON OVERCOMING THE EXAMINER'S POSITION REGARDING USC 101

Transformation for Inactive to Active is Patentable even without the Other Features

Utility is a fact question, and proof of utility is sufficient if it meets at least one stated objective. Here it does - a method to increase loading.

Furthermore, a method to increase loading necessarily involves transformation of a state or thing. Therefore, the Examiner has not followed the standards of review because such a two state method should be patentable based upon opinion of the Court.

"Transformation and reduction of an article "to a different state or thing" is the clue to the patentability of a process claim that does not include particular machines."

[GOTTSCHALK v. BENSON, 409 U.S. 63 (1972),
409 U.S. 63, No. 71-485]

"Industrial processes such as this ["a physical and chemical process (which involves) the transformation of an article into a different state or thing"] are the types which have historically been eligible to receive the protection of our patent laws. [450 U.S. 175, 185]"

[DIAMOND v. DIEHR, 450 U.S. 175 (1981)]

ADDITIONAL REASON OVERCOMING THE EXAMINER'S POSITION REGARDING USC 101

The Examiner Ignores Constitutional and Congressional Directive and Authority

The Examiner has rejected the controlling authority of Art. I, §8, cl. 8 which provides that

"Congress shall have Power (to) promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."

Art. I, §8, cl. 8 empowers Congress in this matter.

The Examiner has rejected that the US Congress has mandated progress.

"The patent laws (reflect) this Nation's deep-seated need to encourage progress."

[DIAMOND v. CHAKRABARTY, 447 U.S. 303 (1980),
447 U.S. 303, No. 79-136]

The Examiner has rejected that the US Congress has mandated encouragement of science, and the Office's actions are inconsistent with the Patent Act of 1793, authored by Thomas Jefferson, which defined statutory subject matter as "any new and useful art, machine, manufacture, or composition of matter" Act of Feb. 21, 1793, 1, 1 Stat. 319, and with the Act which embodied Jefferson's philosophy that "ingenuity should receive a liberal encouragement." [447 U.S. 303, 309].

Given the facts stated above, and the fact the Office has granted patents to inventions of considerably less "utility" [e.g. Patent 3,580,592 or 3,450,403], any further rejection of the present invention on this arbitrary basis based upon such a presumed "non-utility" would appear to be both capricious, unwarranted, and unreasonable. As the original specification and claims teach, the invention has features of great utility. The Examiner should admit that said features are not "incredible" but can be elicited when using the teachings of the original specification and claims. Furthermore, there is documented existence of these reactions and the preferred environment in which the present invention does operate. The number of papers in this field confirms both the "existence" and "utility" of these phenomena and any associated technologies.

Appellant asks the Board, because the Examiner and his supervisor both refused to answer the following question:

Exactly how many Declarants does it take to overcome the Examiner's [unsubstantiated] rejection regarding utility?

In summary, the invention (structure, operation and composition) is defined by the claims and the original specification, and in this case they correctly define the invention, and the teachings have been corroborated, and therefore there is enablement (a question of law; *In re Fouche*, 439 F.2d 1237, 1243, 169 USPQ 429, 434, (CCPA 1971)). Enablement, utility, and operability are grounds for patentability. In this case, the Applicant has set forth products and methods which have undergone peer-review, and Declarants and other affiants who have stated as fact that there is utility within the meaning of 35 U.S.C. 101 [*Brenner v. Manson*, 148 U.S.P.Q. 689].

Therefore, in this case, utility under 101 is clearly shown. Given the utility, Appellant respectfully requests reconsideration and reversal of the rejection of Claims 1, 10, 11, 21, 22, and 24-30 pursuant to U.S.C. 101.

CONCLUSION

The Office should issue the patent because Appellant taught in the original specification and claims how his apparatus works and claimed the invention. Appellant thereafter has made a diligent effort to amend the claims of this application so that Claims 1, 10, 11, 21, 22, and 24-30 define a novel structure which is also submitted to render said claimed structure unobvious because it produces new and unexpected results.

The Office should issue the patent because Appellant has herein demonstrated that any combination of Westfall or Kinsella and Edwards, Sadoway, Van Noorden, Dufour, Cedzynska, or Edwards and/or the other cited art is an improper one, absent any showing in the references themselves that they can or should be so combined, and that neither of the references appears to suggest, or allude to, or teach a structure as defined by the teachings of the original specification of the above-entitled application or claimed by Claims 1, 10, 11, 21, 22, and 24-30. Appellant has explained in detail (supra) how the

Other cited art are different and therefore produce a different result from the present invention. The figures and claims of Westfall or Kinsella and Edwards, Sadoway, Van Noorden, Dufour, Cedzynska, or Edwards and the other cited art are intended to, and do, serve a different purpose than does the structure defined by the claims, and each of the cited art adds nothing of substance. None of the cited references shows a method to control the production of heat or nuclear product which includes in combination loading an isotopic fuel into a material by an applied electric field, and then at a later point in time applying a second applied electric field to redistribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material as the Examiner purports.

The Office should issue the patent because Appellant has given lists of additional critical features and components which distinguish Applicant's invention to operatively function in a different manner compared to said cited art.

The Office should issue the patent not only because Applicant has met the standards of review, and not only because the Applicant has supported his work with both peer-reviewed publications and Declarations, but because the Office purports in its latest Communications that Japan has stopped all cold fusion research, but Applicant has demonstrated Japanese cold fusion efforts did precede World War II (*supra*) and do continue and accelerate to this day, and in several Japanese laboratories and companies including Mitsubishi (*supra*). The Office was incorrect and that is important because Japan gives patents on cold fusion because technologies are important to Japanese security and consistent with the Japanese Constitution. Fewer patents are issued in Japan, but Japan issues patents on cold fusion.

The Office should issue the patent because the The US Patent Office has ignored the US Constitution and US security and US citizens' civil rights to withhold reasonable cold fusion patents even though "(m)ost patent applications submitted to the U.S. Patent and Trademark Office are approved". And they are, including astrology patents to predict lottery numbers. The mathematics of the Office's systematic discrimination and warfare upon the inventive American citizenry for fourteen years speaks indelibly for itself. The Office is in breach of its responsibility, and the aegis of authority granted to it by Congress under the United States Constitution.

WHEREFORE for the above reasons, including submitted Declarations and the peer-reviewed published papers proving validation both de jure and de facto, the Applicant respectfully requests reconsideration and reversal of Claims 1, 5-8, 10-14 and 21-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Westfall (U.S. 5,215,631), Claims 1, 10, 11, 21, 22, and 24-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinsella et al. (U.S. 3,682,806), Claims 8 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Cedzynska et al. in view of Westfall, as applied to claims 1, 5-7, 10-12, 14 and 21-30 above, and further in view of anyone of Edwards, Sadoway (WO 91/06959) or Van Noorden (NL 8909-962-A) or Dufour (WO 91/01036), Claims 1, 5-7, 10-12, 14 and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cedzynska et al. (WO 93/01601) or Edwards (WO 90/1541 6) in view of Westfall, and all Claims 1, 10, 11, 21, 22, and 24-30 rejected under 35 U.S.C. 112 and 35 U.S.C. 101 by the Examiner, based upon flawed reference to other art ("FP" or "F+P") rather than the present invention, as is just and reasonable.

Respectfully submitted,



Mitchell R. Swartz, ScD, MD, Appellant, *pro se*
Weston, MA

Certificate Of Mailing [37 CFR 1.8(a)]

September 17, 2003

To Whom it Does Concern:

I hereby certify that this correspondence will be deposited with the United States Postal Service by First Class Mail, postage prepaid, in an envelope addressed to

"Office of the Clerk
Board Of Patent Appeals
c/o The Commissioner for Patents
Alexandria, VA 22313-1450" on the date below.

Thank you.

Sincerely,

September 17, 2003



M.R. Swartz
Weston, MA 02493

APPENDIX A
THE CLAIMS INVOLVED IN THE APPEAL
['691]

incomplete

Claims 1, 5 through 8, 10 through 14, and 21 through 30.

1. In a process for producing a product using a material loaded with an isotopic fuel, a method to control the production of said product which includes in combination:
applying an electric field to load said isotopic fuel to said material,
loading said isotopic fuel into said material,
applying a second electric field in a non-parallel direction to the first applied electric fields,
producing redistribution of said isotopic fuel within said loaded metal,
thereby controlling the product produced.
5. In a method as in claim 1, where the isotopic fuel is a member of the group consisting of an isotope of hydrogen, boron, lithium, or potassium.
6. In a method as in claim 1, where the material is a member of the group consisting of palladium, titanium, or nickel or their alloys.
7. In a method as in claim 6, where the material is an electrochemical cathode.
8. In a method as in claim 1, where the additional step is taken of applying a spatially inhomogeneous magnetic field intensity through said material.
10. In a process for producing a product using a material by a reaction, a method to control the redistribution of isotopic fuel loaded into said material which includes in combination:
applying an electric field to load said isotopic fuel into said material,
applying a second electric field to said material loaded with said isotopic fuel,
thereby effecting redistribution of said isotopic fuel.
11. In a method as in claim 10, where the isotopic fuel is a member of the group consisting of an isotope of hydrogen, boron, lithium, or potassium.
12. In a method as in claim 10, where the material is a member of the group consisting of palladium, titanium, or nickel.

13. In a method as in claim 10, where the additional step is taken of applying a spatially inhomogeneous magnetic field intensity through said material.

21. In a process for producing a product using a metal loaded with an isotope of hydrogen, a method to effect redistribution of said isotope of hydrogen in said material which includes in combination:

→ applying an electric field to load said isotope of hydrogen into said metal,
loading said metal with said isotope of hydrogen,
thereafter applying a second electric field in a non-parallel direction to the first applied electric field,
thereby distributing said isotope of hydrogen within said loaded metal.

22. In a method as in claim 21, where the material is a member of the group consisting of palladium, titanium, or nickel or their alloys.

23. In a method as in claim 21, where the additional step is taken of applying a spatially inhomogeneous magnetic field intensity through said material.

24. In a method as in claim 21, where the additional step is taken of having said redistribution of said isotopic fuel impact a barrier impermeable to said isotopic fuel.

25. In a method as in claim 24 where there are more than one impermeable barrier arranged in alternating layers with said loaded material.

26. In a method as in claim 1, where the additional step is taken of having said redistribution of said isotopic fuel impact a barrier impermeable to said isotopic fuel.

27. In a method as in claim 26, where there are more than one impermeable barrier arranged in alternating layers with said loaded material.

28. In a method as in claim 10, where the additional step is taken of having said redistribution of said isotopic fuel impact a barrier impermeable to said isotopic fuel.

29. In a method as in claim 28, where there are more than one impermeable barrier arranged in alternating layers with said loaded material.

30. In a method as in claim 1, where said material is axially-loaded with said isotopic fuel.

APPENDIX B
THE CLAIMS WITH THE AMENDMENTS ENTERED AFTER FINAL
['691]

NE 1. (Amended) In a process for producing heat or a nuclear product using a material loaded with an isotopic fuel, a method to control the production of said product which includes in combination:

applying an electric field to load said isotopic fuel to said material,

loading said isotopic fuel into said material,

applying a second electric field in a non-parallel direction to the first applied electric fields,

producing redistribution of said isotopic fuel within said loaded metal,
thereby controlling the product produced.

NE 5. In a method as in claim 1, where said isotopic fuel is a member of the group consisting of an isotope of hydrogen, boron, lithium, or potassium.

6. In a method as in claim 1, where the material is a member of the group consisting of palladium, titanium, or nickel or their alloys.

7. In a method as in claim 6, where the material is an electrochemical cathode.

8. In a method as in claim 1, where the additional step is taken of applying a spatially inhomogeneous magnetic field intensity through said material.

NE 10. In a process for producing heat or a nuclear product using a material by a reaction, a method to control the redistribution of isotopic fuel loaded into said material which includes in combination:

applying an electric field to load said isotopic fuel into said material,

applying a second electric field to said material loaded with said isotopic fuel,
thereby effecting redistribution of said isotopic fuel.

11. In a method as in claim 10, where the isotopic fuel is a member of the group consisting of an isotope of hydrogen, boron, lithium, or potassium.

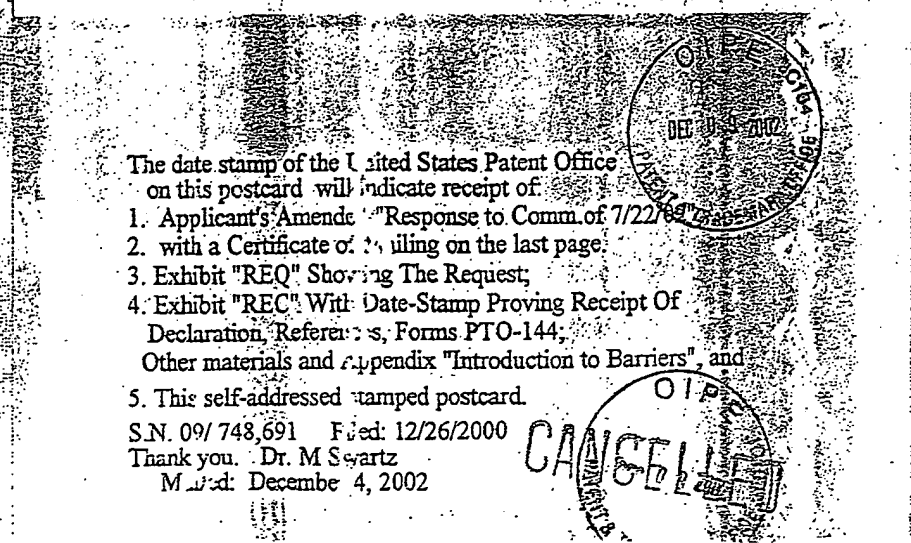
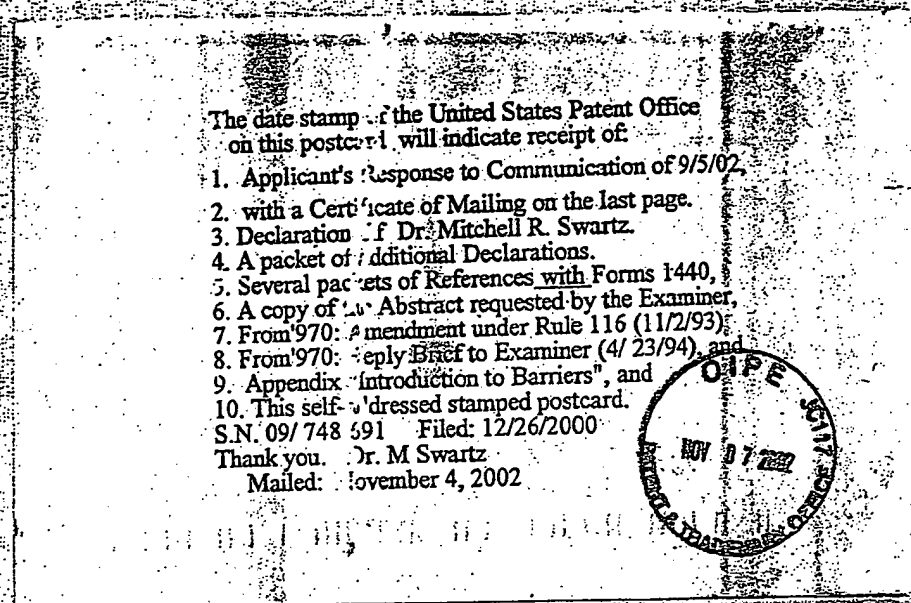
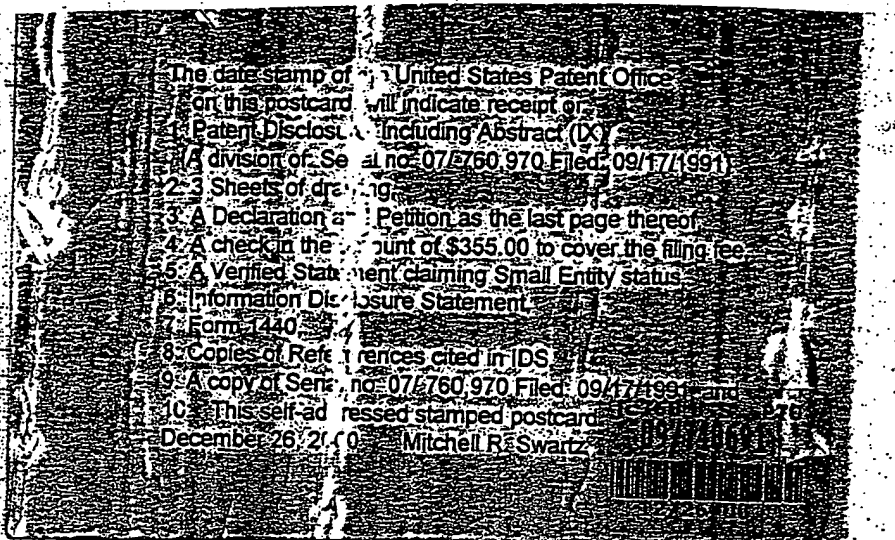
12. In a method as in claim 10, where the material is a member of the group consisting of palladium, titanium, or nickel.

13. In a method as in claim 10, where the additional step is taken of applying a spatially inhomogeneous magnetic field intensity through said material.

- NE 21. In a process for producing heat or a nuclear product using a metal loaded with an isotope of hydrogen, a method to effect redistribution of said isotope of hydrogen in said material which includes in combination:
applying an electric field to load said isotope of hydrogen into said metal,
loading said metal with said isotope of hydrogen,
thereafter applying a second electric field in a non-parallel direction to the first applied electric field to thereby distribute said isotope of hydrogen within said loaded metal.
22. In a method as in claim 21, where said loaded material is a member of the group consisting of palladium, titanium, or nickel or their alloys. ?
23. In a method as in claim 21, where the additional step is taken of applying a spatially inhomogeneous magnetic field intensity through said material.
- NE 24. In a method as in claim 21, where the additional step is taken of having said redistribution of said isotopic fuel stopped by a barrier impermeable to said isotopic fuel.
25. In a method as in claim 24 where there are more than one impermeable barrier arranged in alternating layers with said loaded material.
- NE 26. In a method as in claim 1, where the additional step is taken of having said redistribution of said isotopic fuel stopped by a barrier impermeable to said isotopic fuel.
27. In a method as in claim 26, where there are more than one impermeable barrier arranged in alternating layers with said loaded material.
- NE 28. In a method as in claim 10, where the additional step is taken of having said redistribution of said isotopic fuel stopped by barrier impermeable to said isotopic fuel.
29. In a method as in claim 28, where there are more than one impermeable barrier arranged in alternating layers with said loaded material.
30. In a method as in claim 1, where said material is axially-loaded with said isotopic fuel.

APPENDIX C

The self-addressed stamped postcards bearing the imprimatur of the stamp of the Patent Office's Post Office proving timely receipt of Exhibits and pleadings.



The date stamp of the United States Patent Office
on this postcard will indicate receipt of:

1. "Response of Applicant to Office Action",
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on the last page thereof, and
2. Version With Markings To Show Changes Made,
3. Petition To The Commissioner Supported By A
3. Declaration of Dr. Mitchell Swartz
4. Several Packages of Exhibits Rebutting The Examiner,
5. Forms 1440 For said Exhibits, and
6. This self-addressed stamped postcard.

S.N. 09/748,691 Filed: 12/26/2000

Thank you.

Mailed: March 24, 2003 Dr. Mitchell Swartz



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S.N. 09/748,691 Filed: 12/26/2000

Thank you.

Mailed: April 19, 2003 Mitchell Swartz



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2. Declaration of Dr. Mitchell Swartz, and
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S.N. 09/748,691 Filed: 12/26/2000

Thank you.

Mailed: April 19, 2003 Dr. Mitchell Swartz



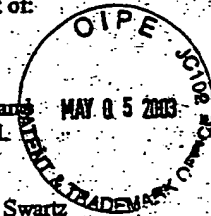
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S.N. 09/748,691 Filed: 12/26/2000

Thank you.

Mailed: April 30, 2003 Dr. Mitchell Swartz



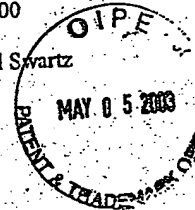
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1. "Notice Of Appeal", ~~with a Certificate of mailing~~ **check \$160.00**
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S.N. 09/748,691 Filed: 12/26/2000

Thank you.

Mailed: April 30, 2003 Mitchell Swartz



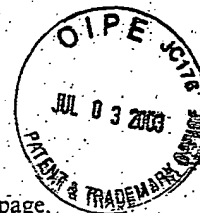
The date stamp of the Board Of Patent Appeals
on this postcard will indicate receipt of:

- 1) Appellant's Appeal Brief (in triplicate),
- 2) containing a Certificate of Service on the last page,
- 3) Appellant's Appendix attached thereto,
- 4) Appellant's Certificate Of Mailing,
- 5) Appellant's check in the amount of \$160, and
- 6) This Self-addressed postcard for the date stamp
of the Board Of Patent Appeals.

Thank you. Dr. Mitchell R. Swartz

Mailed June 09, 2003

Serial no. 09/748,691



APPENDIX D

ICCF10: A Message from the Front

As we send this issue of Infinite Energy to our printing company in Manchester, New Hampshire in early September, we have just returned from the exhilarating Tenth International Conference on Cold Fusion (ICCF10) in Cambridge, Massachusetts, very near and also at MIT. Yes, there was an historic set of excess-heat-producing cold fusion demonstrations at Prof. Peter L. Hagelstein's offices at MIT in the Dept. of Electrical Engineering and Computer Science! There is a staggering amount of news about cold fusion and low-energy nuclear reactions (LENR) to report from the conference (a lot to digest even for a veteran attendee of ICCF's. Time and space do not allow a lengthy report in this Infinite Energy, but it is likely that by the time you receive this issue I will have posted a special review of ICCF10 on our web site www.infinite-energy.com. Of course, there will be a full hard-copy report in the next issue of the magazine (out in November), and readers should also consult the material being posted on www.lenr-canr.org. Infinite Energy's non-profit New Energy Foundation, Inc. plans to offer soon one or more DVD's that will highlight important conference lectures (and possibly a set of DVD's covering the entire conference.

For now and to whet your appetite for more information, here are some of the high points to be taken from ICCF10:

During ICCF10, Dr. Mitchell Swartz's palladium Phusor/low electrolyte conductance heavy water/platinum cell performed flawlessly in Prof. Hagelstein's lab at MIT. Its excess power ranged from 167% to 267% as Dr. Swartz altered the experimental conditions. This excess heat, as measured by his precision calorimeter, persisted from Sunday August 24 to August 30, longer than ICCF10 itself. The excess heat was interrupted on the last day only to bring the equipment back to Wellesley, MA, otherwise it would have continued much longer.

Prof. John Dash of the physics department at Portland State University in Oregon and his summer high school student interns also put on historic demonstrations of excess heat at Prof. Hagelstein's lab. They used simple but effective calorimetric apparatus, which allowed observers to check the level of excess heat for themselves. This proves that even high-school students can be more effective on the frontiers of science than the US Department of Energy and the 1,000-plus MIT professors who did not attend ICCF10. Only two MIT professors attended (Prof. Hagelstein and ex-Prof. Keith Johnson, both of whom have been involved in the field since its early days. (This, despite the 150 to 200 ICCF10 posters that I had earlier placed around MIT and a prominent ad in the Boston

Globe which Prof. Hagelstein paid for from his personal funds.) Only a few MIT students showed up (outnumbered by the high-school students in Prof. Dash's group from Portland State University in Oregon. (It should be noted that the both the Boston Globe and the Boston Herald chose to boycott the conference, despite having been repeatedly alerted about its significance.)

Helium-4 correlated with excess heat has been observed now in a solid-state LENR device by a laboratory effort sponsored by the Italian government. The astonishing nuclear transmutation experiment carried out by the Iwamura group at Mitsubishi Heavy Industries Advanced Technology Division, which was reported in *Infinite Energy* (No.47, pp.14-18) and later published in the *Japanese Journal of Applied Physics* has now been reproduced by the A. Takahashi group at Osaka University. In this experiment, deuterium (heavy hydrogen) gas is made to flow through a palladium membrane onto which another element, such as cesium or strontium, has been deposited. With no energy input (other than the pressure of the gas) the deposited element transmutes to another element. For example, cesium declines and the rare earth element praeosodymium appears and grows. Or, strontium declines and molybdenum grows. The term 'grow' is appropriate, since to make the new elements, it is necessary for the starting nuclei to 'absorb' four deuterium nuclei! Obviously, this flies completely in the face of every cannon of basic chemistry, but the evidence for the result is now overwhelming. It is nothing short of modern alchemy.

There is much more, but I need to end these highlights. Though the 'cold fusion war' has not yet been won and it could still be lost, the field seems to have picked itself up with the remarkable turning point of ICCF10. ICCF11 will be in Marseilles, France in October

Dr. Eugene Mallove
September 2, 2003

ZerÆpoint®
8200A Bull's Ferry Rd. #2
North Bergen, NJ 07047

September 1, 2003

Mr. Al Gore

Dear Al,

... My more strategic issue concerns energy. I've included some articles with the same kind of investigative details about First Energy and their links to the current "ruling faction" in Washington. However, I've also included the list of attendees from last week's "10th International Conference on Cold Fusion" and highlighted some of the names, titles and entities the attendees represented. No, cold fusion is not yet ready for full-scale commercialization. Yes, cold fusion is real and deserves research funding. Interestingly, Dr. Peter Hagelstein of MIT was the conference chair. He did a magnificent job. There was even a "field trip" from the hotel where the conference was held in Cambridge, to Room 568 in Building 36 at MIT where a live "overunity" (more-power-out-than-in) cold fusion experiment was hosted by Dr. Mitchell Swartz.

I learned first-hand at this conference that the very academic "cold fusion community" is far more interested in determining the physical and chemical equations in the languages they know than they are in understanding how the simple spark has enough energy in it to melt aluminum. They appear to go to great lengths to overcomplicate things, but that is understandable, since it conforms to the paradigms they are most accustomed to. Two names on the conference attendee list are from Toyota Central R & D. Labs. This was most encouraging, since Toyota funded Fleischmann and Pons in France after they were "run out of town" by the American Physical Society in 1989-1990. In my letter of 7/31 to Mr. Toshiaki Taguchi, president & CEO of Toyota Motor North America, I asked Toyota to fund research into "new energy" in a new way, using a recently updated version of the artificial intelligence application that IBM used to defeat Gary Kasparov in chess in the mid-'90's. My proposed approach would include analyzing the data from ALL new energy experiments (at least as many as possible that are published) to factor out the "least common denominator(s)" in them.

Let's apply a methodology with a proven track record for determining optimal logical strategies to the search for an appropriate energy alternative to oil, gas and current-day fission nuclear power, none of which are clean, safe or economical.

Yours truly,

John Miranda, President
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